...WEEKLY
...S-RECORD

...WEEKLY PUBLICATION

SEPTEMBER 8, 1949

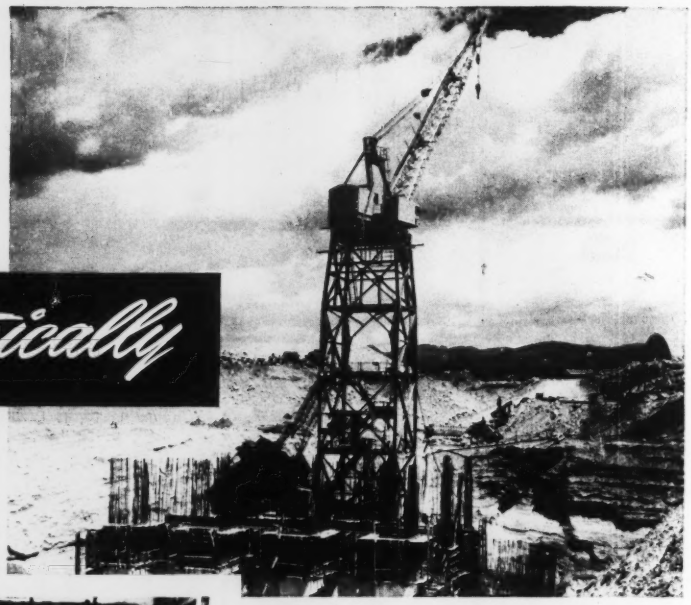
...Shovel takes a bite to work on Seattle water supply job (see p. 8)

...SHOULD SCHOOLS COST?

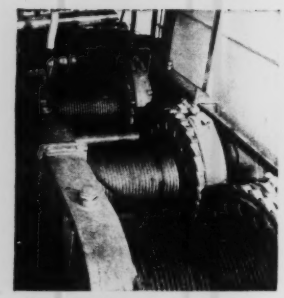
...HOW A CITY IS BUILT

swing and hoist

. . . Electrically



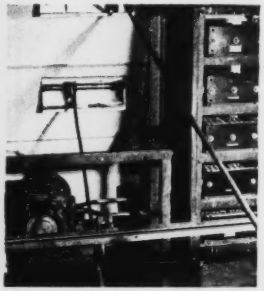
G-E equipped Colby crane at work on site of Granby Pumping Station



Hoist assembly consists of cable drums and General Electric 100-hp motor

Operator at controls of Colby crane, spotting loaded concrete buckets

Inspection and maintenance of the G-E control equipment is easy



Swing motor and resistor assembly are compact, yet readily accessible

Colby Crane Helps Granby Constructors Shorten Schedule

Here's the "sky hook" that's accelerating concrete placing operations at Granby Pumping Station, heart of the Bureau of Reclamation's Colorado Big Thomson project. The crane is built by Colby Steel and Engineering Company of Seattle and embodies the latest and most efficient electric drive and safety devices.

Machinery manufacturers and contractors alike are realizing the time and money economies of *electrically* driven construction equipment. And by specifying General Electric they get the additional advantages of engineering assistance in application, installation and service wherever the job may be.

Ask him Today!

Whether you use or build construction equipment, your G-E representative can show you how to do a better job at lower cost by complete electrification. He will be glad to call on you at your convenience. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

Electrified Construction
BETTER PRODUCT
LOWER COST

GENERAL ELECTRIC

664-2

LOW COST PER UNIT OF WORK

Suppose you're considering two competitive brands of wire rope. They look alike, but one sells for a little less than the other. Bargain? Often it's anything but a bargain. For purchase price alone isn't the measure of wire-rope economy.

Sometimes you may find a wire rope with a lower price tag than Bethlehem's. But how does the cheaper one compare in total service rendered? How about its *Cost per Unit of Work?*

What a unit of work is depends, of course, upon the industry involved. It can be a ton of rock moved by a power shovel. Or a car of coal hauled up a slope. Or a ton-mile in oil-country rotary drilling. But in any case, unless your final rope Cost per Unit of Work is *low*, the rope has not done an economical job for you. That's why first cost—purchase price—isn't the sole yardstick.

Bethlehem wire rope is a quality product, one conscientiously built for long-range economy. When you buy it, you are spending your money wisely. You are buying wire rope that means, in the truest sense, *low* Cost per Unit of Work.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

This is the little gimmick that does a TREMENDOUS SUPPORT JOB...

It's a Peerless Wedge Insert . . . and when we say, "peerless" we ain't kidding! For adjustable shelf angle support of ornamental stone, brick or metal facings, you'll agree it has no equal—for ease of installation, adjustability, holding power, and the time it saves, because shelf angles can be set at any time. See Section E of our new Catalog—you'll see at once why this ingenious Wedge Insert saves times and money . . . and eliminates future maintenance.

INSIST ON RICHMOND
. . . AND BE SURE IT'S RICHMOND!
Richmond
SCREW ANCHOR CO., INC.
816-838 LIBERTY AVENUE · BROOKLYN 8, N.Y.
MANUFACTURERS of
ENGINEERED TYING DEVICES,
ANCHORAGES and ACCESSORIES
for CONCRETE CONSTRUCTION

DO IT NOW!

RICHMOND SCREW ANCHOR CO., INC.
820 Liberty Avenue, Brooklyn 8, N. Y.

Gentlemen: Please rush me your new Richmond Catalog. No cost or obligation to me, of course.

NAME_____
ADDRESS_____
CITY_____ STATE_____

ENGINEERING NEWS-RECORD

VOLUME 143 SEPTEMBER 8, 1949 NO. 10

WALDO G. BOWMAN
Editor

FEATURES IN THIS ISSUE

The Richland Story—Part I.....L. L. Wise 16

Facilities Control School Building Costs..... 19

Results Check Pile Length Design.....L. T. Evans 24

Rebound-Prevention in a Mat Foundation..... 25

Speed Concrete on S. F. Apartments..... 28

DEPARTMENTS

Editorials	5	Municipal Affairs	42
Scoreboard	6	Elections and Activities	43
Construction Week	3	Obituaries	43
News of the Week	7	Materials Prices	44
Developments Abroad	30	Construction Reports	48
Book Reviews	32	New Products	68
Men and Jobs	38	Manufacturers' Publications	70

Reader Comment 72

Number of Copies 45,520

Managing Editor—Eugene E. Halmos, Jr.

Associate Editors—*New York*, V. T. Boughton, (senior associate), F. S. Merritt, R. H. Dodds, J. C. Bumstead, R. N. Larkin; *Cleveland*, J. R. Carr; *Chicago*, H. T. Perez; *San Francisco*, N. A. Bowers; *Washington*, V. B. Smith.

Assistant Editors—*New York*, T. D. MacGregor, Arthur J. Fox, Jr., Melvin Dean; *San Francisco*, L. L. Wise.

Contributing Editor—Edward J. Cleary.

Business News—Elsie Eaves, *Manager*; J. A. Mahoney, Robert F. Westervelt, M. W. Roessler, M. Wetzel, E. M. Huber.

Staff Assistants—Ethel Lyon, Louise Barker, Helen Chase, Henry Lefer, Behri Pratt, Ruth Immler, Jane Lucia.

Domestic News Bureaus—Atlanta, Chicago, Cleveland, Detroit, Houston, Los Angeles, San Francisco, Washington. Correspondents in 71 cities in the United States, Canada and Mexico.

Foreign News Bureaus—London, Frankfort, Paris, Moscow, Tokyo, Bombay, Melbourne, Rio de Janeiro, Mexico City. *Correspondents*—Athens, Rome, Caracas, Buenos Aires, Santiago, Shanghai, Zurich, Johannesburg and 40 other cities.

ROBERT F. BOGER
Publisher

Member ABC Member ABP

September 8, 1949 ENGINEERING NEWS-RECORD Volume 143—No. 10

Publication Office—99-129 N. Broadway, Albany 1, N. Y.

Executive and Editorial Offices—330 West 42nd St., New York 18, N. Y.

Copyright 1949 by McGraw-Hill Publishing Co., Inc. All rights reserved. Published every Thursday by the McGraw-Hill Publishing Co., Inc., James H. McGraw (1860-1948) founder; JAMES H. McGRAW, JR., President; CURTIS W. McGRAW, Senior Vice-President and Treasurer; JOSEPH A. GERARDI, Secretary; NELSON BOND, Vice-President and Director of Advertising; EUGENE DUFFIELD, Senior Vice-President, Publications Division; J. E. BLACKBURN, Jr., Vice-President and Director of Circulation. Cable Address, "McGraw-Hill New York."

Subscriptions: (1 yr., 2 yr., 3 yr.) U. S. and possessions $6, $9, $12; Pan America, $10, $16, $20; Canada, $7, $11, $14; All others, $20, $30, $40.

Address all communications about subscriptions to Director of Circulation. Price 35¢ per copy. Please indicate position and company connection on all subscription orders.

Entered as Second Class matter October 29, 1936, at the Post Office at Albany, N. Y., under Act of March 3, 1879. Printed in U. S. A.

THE CONSTRUCTION WEEK

BAD PLASTERING?—The National Foundation for Lathing and Plastering, Inc., is planning to issue a report on research it sponsored that is expected to show that a 128-year-old, commonly-used structural design practice is all wrong. Checked by the Armour Research Foundation, this empirical rule (which limits the deflection of beams to 1/360th of the span) was found to require the beams to be much larger than necessary to prevent cracking of plaster. NFLP contends that lathed and plastered ceilings suspended by flexible hangers are far superior in crack resistance to commonly-used, directly-nailed, lathed and plastered construction. It follows, says NFLP, that structural members supporting such ceilings can be safely lightened, to realize considerable economies.

ATOM CONSTRUCTION—Contracts have been signed by the Atomic Energy Commission for one of the biggest—but one of the most hush-hush—construction jobs of recent times. Project is a $66,649,000, "K-29" facility in the Oak Ridge area, for which Maxon Construction Co., of Dayton, is prime contractor, and such firms as Giffels and Vallet, Inc., of Detroit, and Sargent & Lundy, of Chicago, have been engaged to do design work. Peak construction employment (completion scheduled in 1951) will be about 2,500. K-29 is an improvement over the earlier K-25 plant (ENR April 15, 1948, p. 551)—which cost an estimated billion dollars to build, and which produces a much-enriched Uranium 235 for use in the fission process.

JOB RIGHTS—Did you have employees who entered the armed services under the Selective Service Act or the more recent draft law? You'll save yourself some trouble if you understand the difference between "probationary" and "temporary" jobs. The law gives ex-servicemen reemployment rights in cases of previous "probationary" employment, but not for "temporary" work. To clarify the situation, the Labor Department's Bureau of Veterans' Reemployment, said last week: "Probationary" refers to a trial period before the worker attains "full fledged status" (which entitles him to such rights as seniority, vacation, promotions and other rights). A temporary job seldom confers such rights.

WHAT PRICE EFFICIENCY—The U. S. Government is determined to get a refund from the Southern Pacific Railway for allegedly excessive charges to Shasta Dam—despite a rebuff by the California Public Utilities Commission. Southern Pacific hauled more than 22,000 carloads of cement for the project between 1940 and 1946, but the Reclamation Bureau contends that the cars were unloaded by speedy, government-owned equipment, thus cutting standby and unloading costs usually covered in railroad rates. The public service group, late in July, threw out the government's claim on the ground of lack of "persuasive evidence." But the U. S. Attorney General has now petitioned for a rehearing.

UNIONS PAY BACK PAY?—A union, as well as an employer, may be liable for back wages of an illegally discharged employee, under terms of a recent NLRB decision. According to the Labor Board, if it is ruled that a worker has been fired illegally because of union insistence and is entitled to back pay, the board itself will collect from both the union and the employer the actual wages due.

STANDARD CONTRACT FOR N. Y.—After nearly three years of negotiation with construction industry representatives, New York City is nearly ready to issue a new standard contract form. At present, the city has 16 separate agencies awarding construction contracts—each with its own form. And a typical form has 33 printed pages, 11 chapter divisions and 58 articles. Besides cutting down on the provisions and unifying terms, the new contract will eliminate current delays of as much as two years in payments, pending adjudication of claims against the city. The city will stipulate anticipated sub-surface conditions and provide for them in plans and specifications, and reimburse the contractor if any variance is encountered. (Previously, the city accepted no responsibility for variance from test-boring indications.) The new contract, approved by all negotiators, has been forwarded to Robert Moses, New York's construction coordinator, for final approval and for distribution to all agencies and parties concerned.

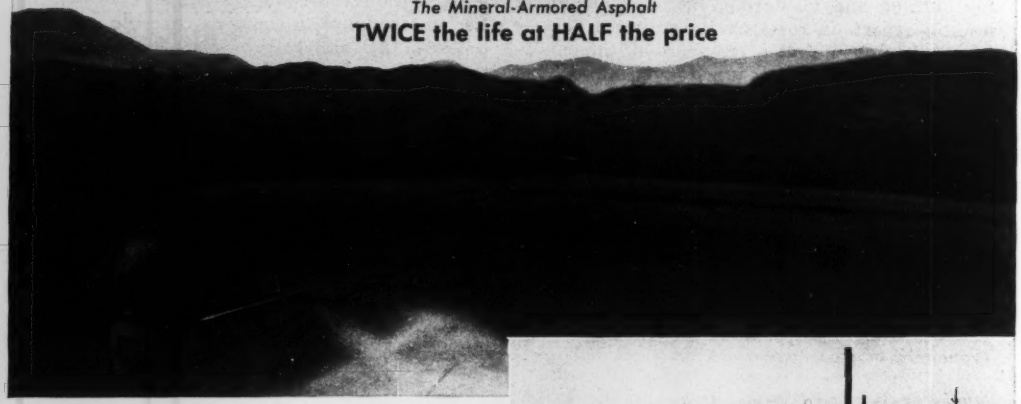
LOBBIES ON THE CARPET—Next in line for a workout before Congressional committees will be the lobbyist—and by that term, the lawmakers mean, among others, the trade associations and probably some government agencies. The lobby investigation has been brewing ever since Congress passed a law a couple of years ago requiring lobbyists to register. Of the private groups, observers think the real estate interests, who fought the public housing laws, will be first. Government lobbying—on public power, irrigation, flood control for example—also will be looked into.

Another Product Pioneered By Bituminuls

Laykold FIBRECOAT

The Mineral-Armored Asphalt

TWICE the life at HALF the price



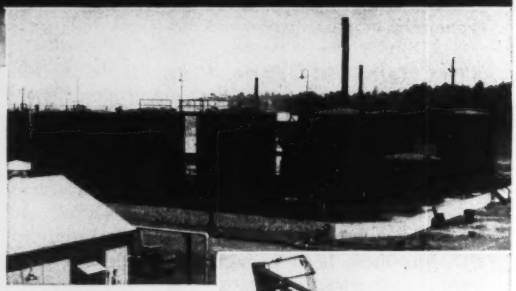
This is a roof in Alaska — not an air-field — one of the largest roofs in the world. Sprayed with FIBRECOAT — in record time and in adverse weather.

FIBRECOAT *Protects*—

METAL—

ROOFS—

MASONRY



FIBRECOAT protects refinery tanks and insulation — endures over a wide range of temperature.

FIBRECOAT protects steel and masonry — outlasts red lead and oil — costs less.

ENDURES — over 1200 hours in Standard Weatherometer Tests, without breakdown. Passes Navy Salt Spray Cabinet Test.

SAFE — Spray or Brush COLD. Bonds to damp or dry surfaces. No fire hazard to job or workmen.

COLORS — Attractive and durable Green, Red or Black.

ACCEPTED — Over 6 million sq. ft. covered last year alone — on roofs, tanks, bridges, buildings, pipe, etc.

ECONOMY — Cost averages less than $1.00 per gallon. Sprays 5 to 10,000 sq. ft. per man per day.

A better coat with FIBRECOAT

In the West

STANCAL ASPHALT & BITUMULS COMPANY

200 BUSH STREET · SAN FRANCISCO 4, CALIF.

Los Angeles 14, Calif. · Oakland 1, Calif. · Portland 4, Ore. · Tucson, Ariz.

In the East

AMERICAN BITUMULS COMPANY

200 BUSH STREET · SAN FRANCISCO 4, CALIF.

Washington 6, D. C. · Baltimore 3, Md. · Perth Amboy, N. J.
Columbus 15, O. · St. Louis 17, Mo. · Baton Rouge 2, La.
E. Providence 14, R. I. · San Juan 23, Puerto Rico

Get this folder— a short, pleasant story of dollars saved for YOU.

School Costs

How much should a new school cost? Despite the frequency with which such a question is asked, there has been almost no published data upon which to base a reply. The school cost information in an article in this issue is, therefore, of more than ordinary importance, and the architects who supplied the figures to Engineering News-Record are entitled to the readers' special thanks.

The data should have a particular usefulness in discussions with city councils, school boards and taxpayers generally. For such laymen, the question of school costs seems to be in a class by itself. To comparable questions—what should a bridge, a city hall or a postoffice cost?—they will take a lump sum for an answer. For schools, however, they want to know the cost per pupil, and find it hard to accept the wide variations encountered, even though, quite plainly, they result from differences in the character and amount of facilities provided. No one would question that a modern fireproof building would cost more than the little red schoolhouse, or that a school that included an assembly hall or a gymnasium should cost more than one without them. But reduce the total costs to investments per pupil and there is immediate suspicion that the higher ones represent extravagance.

The *ENR* survey in this issue reports costs per pupil ranging from $250 to $2,000, with one college building getting up to $3,500, largely because of special laboratory facilities. Over and above their intrinsic utility, the data in the survey illustrate again that intelligent discussion of costs must always be accompanied by careful definition of what you are talking about.

Highway and Transport Costs

A new and enlightening approach to the question of the adequacy of our main highway system is found in a small book just published by the Brookings Institution in Washington: "Automotive Transportation—Trends and Problems" by Wilfred Owen. In it, highways are considered from the viewpoint of their effect on the unit costs of operating autos, trucks and buses.

Out of every dollar spent on automotive transportation, Mr. Owen says, only 5 to 10 cents is applied to building highways. The remainder goes for vehicle operation which could be reduced by better highways.

Like most other students of highway transportation, Mr. Owen is forced to conclude that most of our troubles are due to lack of sound national and state policies with respect to highway building. In the early days of automotive development, some attempt was made to relate the increasing levies placed on automotive transportation to expenditures on highways. The savings in operating costs that resulted were quickly reflected in greater use of motor vehicles, which in turn raised the funds available for road work. But in recent years, especially in developing federal-aid policy, this relation is largely ignored. As a result, highway building and modernization has fallen way behind highway needs.

Overhauling outmoded public policies is cited as the principal challenge of today. How it is to be met, Mr. Owen does not attempt to say except in general terms—and what he says applies chiefly to the states. "In some states, higher-rate user taxes will have to be levied, or greater resort to bonds will be necessary. Other possibilities may include development of toll roads or further adjustments in the allocation of highway costs between light and heavy vehicles where such adjustment is indicated to be necessary."

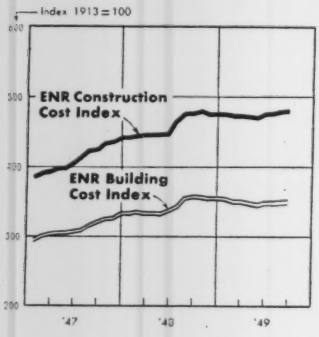
Of the four proposals put forward by Mr. Owen, higher gasoline taxes or bond issues appear to be most logical and practical. If a large amount of new work needs to be put under way promptly, a bond issue may be necessary. If not, then a tax increase appears more desirable, thus keeping road work on a pay-as-you-go basis and eliminating the bond interest expense.

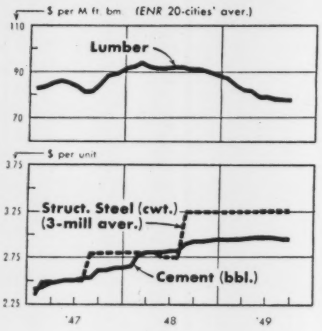
But a more significant consideration is one that never has been so clearly pointed out as it is in this new study by the Brookings Institution. It is the small tax that the average motorist pays per car-mile for the highway he is using—four tenths of a cent. In more than half the states this cost is scarcely 5 percent of the average annual cost of owning and operating a new car.

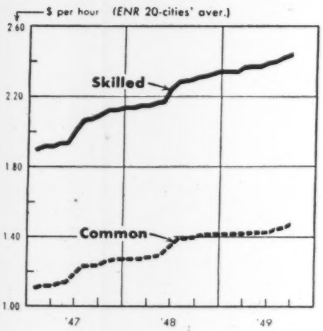
When this finding of the Brookings Institution is considered in connection with a finding made earlier this year by the Bureau of Public Roads that higher taxes on gasoline have not caused a decline in consumption (ENR May 12, p. 49), it becomes apparent that the potentialities of higher gasoline taxes have not been fully explored. In all regions where traffic congestion is serious the saving in gasoline consumption and in time that would come with better highways would probably more than offset the increase in gasoline taxes to provide these better highways.

In other words, a small addition to the 5 or 10 cents of the motorists' dollar that now goes into highway building ought to produce a reduction of greater magnitude in the 90 to 95 cents the motorist now spends in other operating costs. For full effectiveness two conditions would have to be met: the tax increase should be sufficient to produce clear evidence of improvement quickly; and no diversion of the proceeds should be permitted. Here, at least, is a proposal worth careful study.

SEPTEMBER CONSTRUCTION BUSINESS REPORT







ENR INDEXES (1913 = 100)	Sept. '49	Aug. '49	% Change	Sept. '48	% Change
Construction Cost	479.78	478.28	+0.4	478.40	+ 0.3
Building Cost	351.92	350.72	+0.3	356.70	− 1.3
MATERIAL PRICES (20-cities' average)					
Cement, bulk, per bbl	2.949	2.950	0.0	2.940	+ 0.3
Structural Steel, (3-mill aver.), per cwt	3.250	3.250	0.0	3.250	0.0
Sand, per ton	1.981	1.981	0.0	1.970	+ 0.6
Lumber, 2x4 Fir, per M ft. bm	85.544	85.691	−0.2	99.115	−14.0
Lumber, 2x4 Pine, M ft. bm	74.250	72.946	+1.8	85.233	−12.9
Common brick, per M	27.793	27.793	0.0	26.963	+ 3.1
Ready-mixed concrete, per c. y	10.287	10.181	+1.0	10.095	+ 2.0
Structural Clay Tile, 3x12x12 per M	131.827	131.858	0.0	126.868	+ 4.0
WAGE RATES (20-cities' average)					
Common	1.478	1.470	+0.5	1.401	+ 5.5
Skilled (aver. 3 trades)	2.453	2.434	+0.8	2.318	+ 5.8
Bricklayers	2.717	2.672	+1.6	2.516	+ 8.0
Structural Ironworkers	2.405	2.399*	+0.3	2.303	+ 4.4
Carpenters	2.238	2.229	+0.4	2.158	+ 3.7

CONTRACTS AWARDED (thous.)	August 1949 (4-weeks)	August 1948 (4-weeks)	% Change†	Eight Months 1949 (34-weeks)	Eight Months 1948 (35-weeks)	% Change†
Total U. S. (ENR reported)	781,416	563,792	+39	5,360,827	4,610,880	+20
Private	371,440	233,015	+59	2,505,438	2,214,880	+16
Public	409,976	330,777	+24	2,855,389	2,396,000	+23
Federal	74,163	77,560	− 4	735,095	679,609	+11
ENR Const. Volume Index, '13 = 100	352	255	+38	285	252	+13
NEW CONSTRUCTION CAPITAL						
Total	481,330	431,110	+12‡	3,605,991	4,859,306	−24‡
State & Municipal Bond Sales	331,649	200,745	+65	1,958,896	1,293,036	+56
Corporate Security Sales	149,681	165,365	− 9	1,647,095	1,515,049	+12
Federal (non-federal work)	‡	65,000	.....	‡	492,289	.....
Federal (federal work)	‡	.....	.....	‡	1,558,932	.....

‡No Fed. Approp. 1949 to date.

MATERIAL SHIPMENTS & LABOR SUPPLY	July (7) June (6) 1949	1948	% Change	Seven Months (7) Six Months (6) 1949	1948	% Change
Cement, thous. bbls., Bu. of Mines	20,667(6)	21,426(6)	− 4.0	90,301 (6)	91,517(6)	− 1.3
Fabr. Struct. Steel, thous. tons, AISC	141(7)	160(7)	−12.0	1,148*(7)	1,126(7)	+ 2.0
Lumber, mil. ft. bm., NLMA	2,729(6)	3,125(6)	−13	14,662 (6)	17,630(6)	−17
Lumber Prod., mil. ft. bm., NLMA	2,778(6)	3,269(6)	−15	15,505 (6)	17,612(6)	−12
Contract Const. Employ., thous. BLS	2,149(7)	2,219(7)	− 3.1	1,956 (7)	1,901(7)	+ 3.0

*Revised. †Computed on weekly average basis.

ENGINEERING NEWS-RECORD

SEPTEMBER 8, 1949 VOL. 143 NO. 10

Truman supports Reclamation over Army in California

White House OK for Reclamation Bureau Central Valley plan cuts Army duties—Would switch projects, functions —Business, political, agricultural interests involved

Equilibrium of the Reclamation Bureau-Army Engineers jurisdictional struggle over California water development was altered sharply last week—in Reclamation's favor.

The change in balance came when President Truman approved in part a multi-billion-dollar USBR plan for development of Central Valley. His recommendations, which may or may not get Congress' approval, would:

1. Halt Army development of hydroelectric power in the Central Valley.
2. Transfer to Reclamation authorization now held by the Engineers to build three proposed reservoirs.
3. Transfer to Reclamation, on completion, three reservoirs now under construction by the Army and two more to be built by the Army.
4. Confine Army water development work in the Central Valley to flood control or navigation projects exclusively.

Many interests involved

Approval of the Reclamation Bureau's Central Valley program by Congress—and acceptance of the President's recommendations—could have the broadest implications in California. It could affect big agriculture and big business, California politics and perhaps the organization of federal resource-development agencies.

It would virtually assure, based on past performance, a tremendous backlog of federal construction spending in California for years to come.

The plan has been sent to Congress by Interior Secretary J. A. Krug. It went to the President in July, 1948, and was based on a 1945 preliminary report. Mr. Truman did not endorse it without reservation, noting that engineering and economic data were lacking to justify thoroughly many of the projects which the Bureau recommended to him for authorization. Such projects, the President told Congress, should be held as a list of future Central Valley developments—to be undertaken if further study showed them justified.

Dimensions of the plan recommended by the Bureau were imposing. The plan suggested construction of 38 new major reservoirs and an additional 28 hydroelectric plants. Extensive steam-electric power generation and transmission facilities were included.

Cost: almost $3 billion

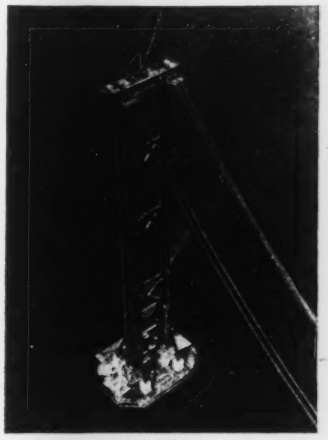
Combined with the existing authorized Central Valley project, the new totals for Central Valley would boost:

1. Overall cost of the entire project to $2,752,416,000 at present USBR estimates.
2. Raise the power capacity of the overall project to 1,697,000 kw.
3. Supply irrigation water for 2,000,000 acres now served by inadequate groundwater sources and about 400,000 acres which are damaged in occasional dry years; 360,000 acres in river deltas that need protection from salt water; and 3,040,000 acres not now irrigated.

Cost of the presently authorized Central Valley project is $411,000,000.

As submitted last year, the Bureau's plan was accompanied by objections from the Secretary of the Army and the state of California. The Army, naturally, objected to transferring its projects to the Bureau. California objections centered around the local control of projects. The state felt possibilities for local control would be greater under the Army than under Reclamation control.

Political implications for California centered in the Reclamation Bureau's 160-acre limitation. Under it, federally-developed water is not supplied to landowners in excess of 160 acres per owner. This policy has been pushed vigorously by the Bureau, and fought as vigorously by large landowners. As a result of the fight, it has become a strong political issue in the state, even within party lines. Giving the Bureau control over projects heretofore reserved for the Army probably would intensify skirmishing over applicability of the 160-acre limitation, involving large agricultural and, inevitably, political interests.



CABLE SPINNING for new Tacoma Narrows bridge was about to begin when this picture of the 502-ft. east tower was made. John A. Roebling's Sons Co. is to do the cable job, with Robert J. Cole its erection manager; Harold Hills, field engineer; F. M. Meyerend, field plant engineer; Howard Amoss, master mechanic.

ERROR IN LAST WEEK'S ISSUE

Somewhere in the process of assembling last week's 75th Anniversary issue, two pairs of pages were interchanged. The inconvenience caused the reader by the resulting puzzle is sincerely regretted.

Fortunately, the solution is simple. Read page 125 ahead of page 124. Then read page 127 ahead of page 126.

After that, if you want a sample of our feelings, ask any housewife how she felt when the turkey was scorched just before the guests filed in for Thanksgiving dinner.

—THE EDITORS.

Businesswise, the Reclamation proposal would affect at least the Pacific Gas and Electric Co., one of the three largest privately-owned power systems in the country and a major business factor in California. The Reclamation proposal calls for generating capacity of 1,697,000 kw., which is about 83 percent of PG&E's 1948 capacity, and for an annual output of about 8,100,000,000 kwhr., which is about 93 percent of PG&E's 1948 output.

Specifically, Mr. Truman endorsed these USBR recommendations:

1. That Congress authorize and appropriate for Reclamation to build hydroelectric plants at the New Melones, Tulloch and Pine Flat reservoirs. The Army is now building Pine Flat on the Kings River and has an authorization for New Melones.

2. That construction authorizations for New Melones, Black Butte reservoir on Stony Creek, and New Hogan dam on the Calaveras River be transferred from the Army to the Bureau.

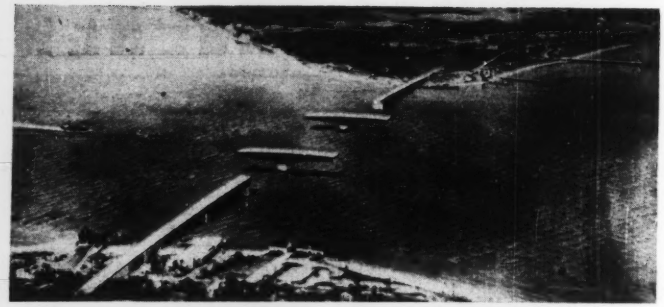
3. That, on completion by the Army, Pine Flat, Isabella on the Kern River, Folsom on the American River, all under construction, and Terminus on the Kaweah River, and Success on the Tule River, be transferred to the Reclamation Bureau for operation.

Lumber prices increase first time in 13 months

A few spotty increases in lumber prices showed up late in August. They are the first sign of stiffening prices since lumber started down its price skid in August, 1948. These first increases are local, in Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York City. They are small, mainly in the $2 to $2.50 range. And they are mainly in the 1-inch boards and in 2 x 6s or larger sizes. They skip 2 x 4s except in Chicago and New York. The increases are mainly on southern pine, but Douglas fir is up $2 in Chicago.

A $4-price drop in Denver across the board on 2-inch stock, however, holds down the ENR 20-cities average for lumber prices for the 14th consecutive month. This is in spite of a $2 rise in Chicago for Douglas fir 2 x 4s, (pine 2 x 4s in Chicago held at their old price but other sizes in pine went up $1 to $2). In New York prices of pine 2 x 4s went up $2.50 per M fbm but Douglas fir prices held at the old figure. These were the only cities in which changes are reported in prices of 2 x 4s on which the ENR 20-cities average is based.

The new lumber prices are reported in full detail on page 46.



LARGEST OF ITS TYPE ever built, this double-leaf swing span bridge will be built across the York River at Yorktown, Va. Bids were opened Sept. 1 on the structure, which in materials and cost will be largest in Highway Department's history. (Aerial photo by LeRoy Anderson, Richmond. Drawing by T. E. Burton, Highway Dept.)

Virginia takes bids on Yorktown bridge

Largest construction job in Virginia history, the long-discussed Yorktown bridge, will cost the commonwealth $7,114,943.

That was the total of the two low bids among 11 proposals which were opened last week. Contracts will not be awarded before Oct. 1.

Two Kansas City, Mo., firms, Massman Construction Co., and Kansas City Bridge Co., were low bidders of seven on the substructure with a joint bid of $4,690,232. Low bidder of four on the superstructure was the Virginia Bridge Co., Roanoke, at $2,424,711.

Combination of the high bids was $11,320,185. Parsons, Brinckerhoff, Hall and MacDonald had estimated the job would cost $7,330,000. The 3,750-ft. double-leaf swing-span bridge will cross the York River at Yorktown on U. S. Route 17.

This bridge, to link the Peninsula with the upper Tidewater country, will call for more than 22,000,000 lb. of structural steel, 2,500,000 lb. of reinforcing steel, and nearly 50,000 cu. yd. of concrete. River excavation will run to some 47,000 cu. yd.

The bridge will have a clear 26-ft. roadway with two safety walks for pedestrians. The floor at the highest point will be some 120 ft. above water, and when both swing spans are open the horizontal clearance will be 450 ft. Massive center piers 40x60 ft. thick will house machinery for opening and closing the heavy swing spans. The double-leaf swing span will be the largest of its type ever built. In fact, only a few of this type have ever been constructed.

The design was selected for the York River crossing to meet modern coastal defense needs and to retain the historic atmosphere of Yorktown. The Department of the Interior, the War Department and the State of Virginia agreed on the "low-level" double-leaf swing span when a high level suspension bridge was rejected as out of keeping with the esthetic atmosphere of the Yorktown area, while the War Department required a wide horizontal and high vertical clearance.

The struggle to get a bridge at Yorktown has been going on since 1927, during which time four different groups have attempted to span the York near the scene of Cornwallis' surrender. The first three groups were private corporations. Now the State Highway Department is preparing for actual construction of the long-awaited crossing under the Revenue Bond Act.

THE COVER PICTURE

This 15-ton power shovel is only an incidental "passenger" on a cableway built by the Guy F. Atkinson Co. to transport men and materials to an otherwise inaccessible construction site on Seattle's Skagit River hydro project.

The cableway, erected on a 30 degree angle, is 1,800 ft. long. It's lower end is near the Seattle City Light's Gorge powerhouse; its upper end is at the site of excavation for a new surge tank. An operator rides in the hoist car (powered by gasoline engine) that hauls itself up and down the cableway.

The current project—for $3,189,000—includes enlarging the powerhouse, penstock tunnel and appurtenant works for a new 60,000 kw. unit expected to be installed and operating by September, 1951.

$925.8 million works funds approved

APPROPRIATIONS PENDING:	1949-50	1948-49
Department of the Interior	**$395,448,776*†**	**$274,608,450**
(71d and 119d)	(29,307,600)	.....
Bureau of Reclamation	333,376,925*†	232,609,500
(71d)	(17,250,000)	.....
(119d)	(1,125,000)	.....
Bonneville Power Administration	26,284,500*†	18,438,900
(71d)	(6,047,500)	.....
Geological Survey	13,675,000	10,956,700
Bureau of Indian Affairs	12,677,351	7,841,000
(71d)	(3,750,000)	.....
(119d)	(830,000)	.....
National Park Service	9,235,000	4,762,350
(71d)	(304,800)	.....
Territory of Alaska	not available	34,912,400‡
Department of Defense	**690,309,510*†**	**710,532,300**
(71d and 119d)	(51,638,000)	.....
Rivers and Harbors Const.	145,694,290*†	166,989,100
Rivers and Harbors Planning	1,900,000*†	.....
Flood Control, Const.	400,826,300*†	405,741,100
Flood Control, Planning	2,973,000*†	.....
Misc. and Emergency	.....	10,532,300
Military Establishments		
Corps of Engineers, Const.	85,706,120*	76,000,000
(71d)	(34,500,000)	.....
(119d)	(13,638,000)	.....
Bureau of Yards and Docks, Pub. Works	53,210,000*	51,337,200
(119d)	(3,500,000)	.....

* passed by Senate only. (71d) First Deficiency law, passed. (119d) Second Deficiency law, passed. ‡ not included in Department of Interior total shown. † in conference.

APPROPRIATIONS TO DATE	1949-50	1948-49
Agriculture: (Public Law 146)	**$72,021,800**	**$79,384,000**
Soil conservation service	52,173,800	45,084,000
Forest service	10,348,000	15,050,000
Flood control	9,500,000	6,000,000
Other, incl. 1948 emergencies	none	13,250,000
District of Columbia (Law 145)	**14,534,250**	**17,721,283**
(119d)	401,175	.....
Independent offices: (Law 266)	**771,424,000**	**793,222,104**
Atomic Energy Commission	296,000,000	126,000,000
Veterans Administration	none	202,000,000
No new money for continuance of VA Hospital Program—funds already appropriated are adequate to cover expenditures through fiscal year 1950.		
Tennessee Valley Auth.	41,424,000	15,142,000
Natl. Adv. Comm. for Aeronautics	10,000,000	10,000,000
General Services Admin.	(423,930,000)	(440,080,104)
Bur. Community Facilities	680,000	896,250
Bureau of Public Roads	407,570,000	435,658,854
Public Buildings Admin.	10,000,000	3,525,000
(119d)	3,200,000	.....
(71d)	2,550,000	.....
Commerce Dept. (Law 19)	**20,496,500**	**8,335,000**
Civil Aeronautics Admin.	14,500,000	3,000,000
Alaska Airports	5,800,000	3,500,000
Wash. Nat'l. Airport	196,500	1,835,000
Legislative appropriation	**3,659,000**	.....
Architect of the Capitol (Law 118)	1,374,500	.....
(71d)	2,274,500	.....
Justice Dept. (Law 179) Fed. Prison System	**497,000**	**298,000**
State Dept. (Law 179) Int'l. Boundary Comm.	**900,000**	**1,500,000**
Federal Security Agency: (Law 141)	**41,897,885**	**45,507,240**
Howard University (141)	5,659,425	507,240
(119d)	394,460	.....
Public Health Service	33,000,000	40,000,000
Research facilities	.....	5,000,000
St. Elizabeth's Hospital	2,844,000	.....

(71d) 1st deficiency appropriation
(119d) 2nd deficiency appropriation

Despite the current log-jam in House-Senate conference committees over appropriations for federal government departments, Congress has succeeded in passing finally measures authorizing expenditures of $925.8 million for construction.

However, federal construction appropriations totalling about $1.1 billion are contained in pending bills.

The tabulation of work already done by Congress on appropriations indicates that the lawmakers are about halfway through their job of providing funds for construction agencies.

The $925.8 million so far actually appropriated compared with $945 million ok's by the same time last year. Appropriations now under discussion, or just approved, are for fiscal year 1950—which started in July.

All of the measures still under debate have been passed by both houses in somewhat different form, and now await action in the great pile-up of appropriations measures for the general government. Just how far behind in its work the national legislature is is evidenced by the fact that construction appropriations that have been finally approved are coming through 45 days behind schedule.

As approved by the Senate, the appropriations measures now under discussion would provide:

A total of $690 million for civil works and military establishments of the Army Engineers; and for the public works program of the Navy's Bureau of Yards and Docks. In addition to this, deficiency appropriations already made law provide another $51,600,000. The two figures together would be about four and one-half percent more than was appropriated last year.

A total of $395.4 million for the Interior Department, plus already-OK'd deficiency appropriations of $29,300,000. These two figures would be 48 percent above funds last year.

Sell N. C. road bonds within three weeks

The first quarter of North Carolina's $200 million worth of rural road bonds will be sold on Sept. 28. Proceeds of the $50,000,000 offering will:

1. Enable work to begin on the roads program, perhaps by the end of this month.

2. Provide funds for road equipment machinery purchases approved recently (ENR Aug. 25, p. 10) by the state over vigorous contractor protest.

One week after approving equipment purchases valued at $4,453,556, the state ok'd another $101,821 worth of equipment contracts for jackhammers, rollers and power shovels. Highway commission engineers said the equipment would be used for normal maintenance.

Voters OK cement plant

Controversy over zoning restriction which would prevent Samuel A. Guilberson from constructing a $15,000,000 cement plant at Whitewater, Calif., ended recently when Riverside County citizens voted approximately 4 to 1 in favor of an unrestricted industrial zone. Guilberson says that he plans to call soon for bids on construction of the plant.

Miami causeway work to begin this fall

Work will be started at the close of the hurricane season late this fall on Miami's fifth causeway across Biscayne Bay. The projected structure will link North Miami with the Bay Harbor Islands at an estimated cost of $2,000,000.

Business leaders say it will make possible large real estate developments, relieve congestion on an existing causeway and make an existing park much more accessible to residents of the northern part of the city. The 2.4-mi. structure will be operated as a toll highway.

POLITICS-PROOF CONSTRUCTION goes on atop House and Senate chambers of the Capitol at Washington. Steel roofs are scheduled for completion by December. Old roofs had been supported by steel trusses. (Wide World Photo)

House disapproves direct home lending

Direct federal housing loans—to cooperatives and to veterans—were knocked out by the House in passing its version of the private housing bill. The House confined its measure to extending and liberalizing the mortgage insurance provisions of the National Housing Act and to enlarge the secondary mortgage market in the Federal National Mortgage Association of the REC.

Direct loans have become the issue before Congress on the private housing bill. The Senate Banking Committee has reported favorably a measure containing the direct loan provisions. A battle is predicted on the Senate floor when the bill comes up for action. Administration leaders feel they have a good chance to carry the direct loan features in the Senate, but the opposition may prove strong enough to defeat them.

Basically, the direct loan proposals call for these two things:

(1) To assist non-profit cooperative housing groups, a new agency known as the Cooperative Housing Administration would be set up within the Housing and Home Finance Agency to make virtually 100 percent loans to cooperative projects for families of moderate income. Money to the amount of $1 billion would be authorized for this purpose.

(2) For veterans unable to obtain 4 percent loans (VA-guaranteed) from banks or other lending institutions, the Veterans Administration would be authorized to make such loans directly. Total authority for these loans would be $300 million.

In other respects, the House-approved bill generally extended and liberalized the mortgage insurance provisions of the present law. The measure would authorize a considerable increase in government purchase of FHA-insured and VA-guaranteed paper from mortgage companies and other lenders. At present, sale of mortgages to FNMA is limited to 50 percent of such paper held by any institution.

The new bill would eliminate the limit on MNMA purchase of mortgages on rental housing, on lower-cost homes and GI loans not exceeding $10,000. This provision has general support in Congress. It would make it easier to finance new building with both FHA and GI loans.

For the important Section 608 of the housing law, under which apartment projects are springing up all over the country, the House bill would extend this war-time emergency section to June 30, 1950, and would authorize $500 million increased mortgage insurance. The House also retained the present 90 percent insurance features.

Five dead, dozen hurt, as Rio apartment falls

Another Rio de Janeiro apartment house under construction has collapsed, killing five workmen this time and injuring over a dozen.

The three-story reinforced concrete building at Rua Teixeira Mendes 83, in Rio's Laranjeiras district, fell down when a stone retaining wall in the rear toppled onto it. Some victims were buried alive; another, pinned by wreckage, underwent amputation of both legs to obtain freedom, and lived.

Brazilian engineer Rodolfo Pimenta Veloso, in charge of the work, was judged guilty of "imprudence, negligence and incapacity" by Rio's mayor, General Angelo Mendes de Moraes, who applied the maximum penalty permitted him: suspension of Veloso's license in Rio de Janeiro for six months. Criminal charges may follow.

The mayor's decision was based on the report of an expert committee. It asserted that Veloso had not taken necessary precautions in leveling the ground behind the apartment house, undermining the retaining wall. Veloso is of the firm "Construtora Veloso Irmãos Ltda.," Rio construction engineers.

On Feb. 9, 1946, a nearly-finished apartment building collapsed in the Copacabana district of Rio, killing 14 workmen. (ENR April 25, 1946, vol. p. 675). A criminal court prosecutor alleged that rock dust instead of sand had been used in mixing concrete. Three of the five accused as responsible were acquitted, and the two others got suspended sentences, but the contractor was barred from any contracting for four years.

Pennsylvania road study seeking data for designs

Pennsylvania wants to know more about the part its highways play in transportation. So it's beginning a second survey of truck weights and sizes and traffic movements generally—in western Pennsylvania. A similar survey in eastern Pennsylvania is nearing completion. The hope is that Highway Department Engineers will get data upon which to base designs.

Checkers will take representative samples, at each control point, of each size and class of truck and truck-trailer combination. Weight, loaded and empty, will be taken, along with truck dimensions. Origin and destination of the trips also will be checked.

Contractors gave heavily to N. C. campaign fund

Road contractors and their material suppliers contributed two-thirds of the $66,229.64 campaign fund which helped North Carolina's Gov. Kerr Scott win a referendum last June on the state's $200 million rural road bond proposal.

This backing antedated Governor Scott's refusal to heed a petition by organized road builders last month (ENR Aug. 25, p. 10) seeking an end to the state's proposal to spend $5,000,000 for machinery and equipment. Contractors charged that such an expenditure would put the state into the road-building business in competition with them.

Contributions to the referendum campaign fund by equipment dealers —who might sell the $5,000,000 worth of machinery to the state— were about one-tenth those of the contractors. Equipment dealers who shared in the $4,555,377 worth of equipment contracts which have been approved thus far donated 6 percent of the June campaign fund. While 38 road builders or material dealers averaged contributions of $1,163.20 apiece, 23 equipment dealers contributed an average of $189 each.

These figures were assembled from a report filed recently by Allen Langston, treasurer of the June campaign fund. They are not necessarily complete.

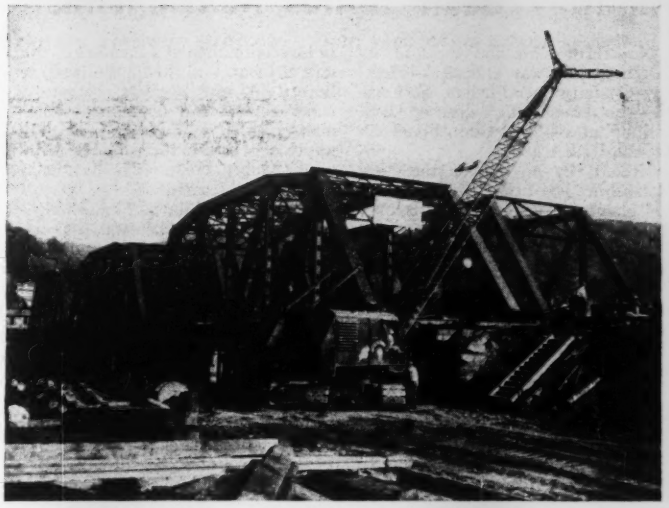
World Bank sends mission to study Turkish plan

French, Canadian and United States engineers will study specific projects for which the Turkish Government is seeking a World Bank loan.

Projects for which the Turks are seeking financing are grain storage facilities, irrigation, flood control and electric power works and port construction and improvement.

J. R. de Fargues, French irrigation and hydroelectric engineer will study the proposed Seyhan Dam, near Adana. Eugene E. Halmos, chief design consultant for Knappen Tippets Abbett Engineering Co., New York City, will examine a port construction and improvement project, and James McAnsh, of Canada, an official of the Economic Commission for Europe, will study the proposal for expanding Turkey's grain storage facilities.

The mission will be headed by G. Stuart Mason, the Bank's loan officer, and will include Arthur Wubnig, of its Economic Department.



SWITCHING SPANS of Pennsylvania Railroad bridge over Allegheny River, at Warren, Pa., took only a few hours. New bridge, left, was moved onto piers under old bridge, right, after bridge was moved onto piling. (Wide World Photo)

Leaking sewer passes Los Angeles test

Los Angeles' Board of Public Works has officially accepted tests on the much-disputed Hyperion outfall sewer which revealed the mile-long structure to be operating satisfactorily within specifications.

Official tests showed the maximum leakage to be 85.3 gpm, well within the 89.4 gpm allowable maximum. The average leakage over the 24-hr. test period was 76.5 gpm, or 4,591 gal. per hr. Maximum leakage was during extreme low tide. Guy F. Atkinson Co., contractor, succeeded in plugging the sewer, reducing the leakage from 1,600 gpm.

In plugging the leaks, some complicated construction problems were faced: The 2,064-ft. inshore section was covered with 30-in. of concrete and thus could be caulked from the inside only. A bulkhead rigged at the 16-ft. transition section immediately beyond the inshore section allowed de-watering of the latter. Inside joints were caulked with lead wool and oakum and dry-tamped with a 1½ sand-to-1 part cement mixture. Three coats of a water-seal solution were then applied over caulked and cemented joints.

The off-shore section, which the contractor claimed was responsible for most of the leakage, could not be dewatered. The contractor feared it might break from its ocean-floor pilings if air-filled. So it was caulked and grouted from the outside by divers. Its extreme outer portions rested in 50 ft. of water. The pre-cast concrete collars over the joints—every 100 ft.—were drilled with 2-in. holes at the top of the collar and a grout gun inserted. Edges of the concrete collars were also lead wool and oakum caulked.

Earlier attempts to spot leaks by dumping 30 lb. of fluorescein dye into the 3,200-ft. offshore section, in hopes that leaks would be apparent from the surface, failed because cross-currents dissipated the dye.

Air also was injected in the partly-filled offshore section, but it revealed only the larger leaks. The smaller ones, which could have easily accounted for the over-specification leakage on earlier tests, failed to show up under air pressure. The contractor's final method was to caulk and diver-inspect every joint.

Los Angeles' Inspector of Public Works, Ted Niederhofer, called attention to the precision alignment of the mile-long sewer, despite its having been laid under water. He called it "perfect alignment and membering of pipe." Alignment of the inshore section was achieved by laying the pipe on railroad rails, imbedded in the footings, which themselves were sunk 40 ft. in the ocean floor.

Highway "dean" retires; Merrill named

New Hampshire has replaced its "Dean of Highway Officials"—Highway Commissioner Frederic E. Everett, who retired with a dean of U. S. fighting men—Maj. Gen. Frank D. Merrill, U. S. A. (ret.).

Everett, by an act of the New Hampshire legislature, will serve as consultant to the new commissioner for one year.

Merrill, who won fame during the last war was commander of Merrill's Marauders, the troops which drove the Japs from Burma and re-opened the Burma Road, is studying possibilities of a departmental reorganization which could result in the appointment of two deputy commissioners and a replacement for former Chief Engineer D. H. Dickinson, who resigned recently, (ENR Aug. 25, p. 14).

A graduate in 1929 of the United States Military Academy, Merrill won the degree B.S. in Military Engineering at the Massachusetts Institute of Technology in 1932. After serving as military attache in Japan from 1938 to 1941, he became a brigadier general in 1943, serving then as a member of the staff of Lieut. Gen. Joseph Stillwell, in Burma. A year later, he became a major general and department commander of U. S. forces in India. He was chief of staff to the U. S. 6th Army until October, 1945. He holds numerous military decorations.

Everett, one of the best known highway authorities in the land, was appointed highway commissioner of New Hampshire in 1915 and has served uninterruptedly since. He has been president of the American Association of State Highway Officials; of the Association of Highway Officials of the North Atlantic States; of the New Hampshire Good Roads Association; chairman of the Maine-New Hampshire Interstate Bridge Authority since its organization; and is a life member of the American Society of Civil Engineers. In 1930, he became a member of the American delegation to the Sixth Congress of the Permanent International Association of Roads Congresses. A year later, he became United States representative on the Permanent Commission of the International Association of Road Congresses. In 1931, he was cited as "Dean of Highway Officials of the United States when he received the George S. Bartlett Award for "outstanding contribution to highway progress." In 1946, he was made Doctor of Engineering by the University of New Hampshire.

Maj. Gen. F. D. Merrill

Pittsburgh redevelopment planned by city, J&L

Pittsburgh expects to be first in the country with a joint city-industrial redevelopment program which will clear 165 acres of sub-standard housing and small business areas for a huge industrial expansion project.

Work will be carried out by the Urban Redevelopment Authority and the Jones and Laughlin Steel Corp., in 30 blocks of the city's southside. It is possible under Pennsylvania's 1945 Urban Redevelopment Law, which provides "power to deal with urban blight and reconstruction, residential and industrial."

Pittsburgh's Mayor David L. Lawrence ascribes part of the motivation to a desire to combat unemployment, but adds that:

"We hope to follow this project with equally important commercial and housing developments that will make Pittsburgh the country's outstanding example of city progress."

Into the cleared area will go six new open hearth furnaces, a big railroad yard, and off-street parking space for 600 cars. Three grade crossings will be eliminated, the main street will be widened, and room will be provided for several other industries. The Authority will spend $225,000 for street improvements. J&L will pay the remainder. Participation of the Authority will permit the program to go ahead despite the refusal of 177 property owners to leave their premises.

Net addition to J&L's capacity will be 400,000 tons, although the new facilities will supply twice that. Completion date is late 1952.

Alcocan water filings bring hearings this month

Public hearings for protests may help the Aluminum Company of Canada decide which of two hydroelectric potentials to develop for its half-billion-dollar, western Canada aluminum project.

Hearings will be held late this month, at Victoria and in the Nechako area, as a result of Alcocan's filing for water rights on the Nechako and Chilco river systems. Salmon fisheries are expected to oppose the Chilco power proposal. As many as 60 farmers in the Nechalko area would be flooded out if Ootsa and Eutsuk lakes were impounded, under the alternate scheme. Conversely, no fisheries objections are expected to be raised against the Nechako proposal, nor would private holdings be inundated by the Chilco development.

Alcocan has not decided which development to pursue, but engineering is concentrated on Nechako.

Army engineers praise Okeechobee flood works

Army Engineers took considerable pride, last week, in the way their protective levees at and near Lake Okeechobee, Florida, withstood the Aug. 26 hurricane.

The recent storm was the first real test of works in the area, officers explained, because hurricanes in the last two years subjected the levees to less intensive battering for shorter periods. This year, there was only minor erosion and wave damage, despite winds up to 128 mph. and storm durations as long as seven hours in some sections.

"The levee system was designed for just such a storm as the present one," declared Col. R. W. Pearson, Jacksonville district engineer. "The 1926 hurricane caused a loss of 300 lives at Moore Haven because of inadequate protection. The results of the 1928 hurricane, when 2,300 persons lost their lives because inadequate protection was provided, give an indication of what the present casualty list would have been had no levees been constructed . . . The density of the population has greatly increased in the protected area since 1928 and it is an indication of the confidence of the inhabitants in the levees that no evacuation was attempted or even considered advisable."

Appoint public works advisory committee

Twelve national organizations have named representatives to the Public Works Construction Advisory Committee of the General Services Administration, Jess Larson, Administrator of General Services, has announced.

"In carrying out the public works functions transferred to the General Services Administration from the former Federal Works Agency, GSA wants to have the benefit of consultation with respresentatives of the leading organizations in the field of public works planning, construction and operation," Larson said.

Edmund R. Purves, executive director of the American Institute of Architects, is the committee chairman. F. Stuart Fitzpatrick, manager, Construction and Civic Development Department, United States Chamber of Commerce, is secretary. Other members are: Carl H. Chatters, executive director, American Municipal Association, Chicago; H. E. Foreman, managing director, Associated General Contractors of America, Washington; Richard J. Gray, president, Building and Construction Trades Department, American Federation of Labor, Washington; Hal H. Hale, executive secretary, American Association of State Highway Officials, Washington; William A. Xanten, president, American Public Works Association, Washington; Joseph H. Ehlers, field representative, American Society of Civil Engineers, Washington; Col. Paul Betters, executive director, U. S. Conference of Mayors, Washington; Frank Bane, executive director, Council of State Governments, Chicago; Charles M. Mortensen, executive secretary, the Producers' Council, Washington; and S. Logan Kerr, American Society of Mechanical Engineers, Philadelphia.

Garrison Dam land options held valid by U. S. court

One U. S. Court upheld another recently in ruling valid options obtained by the federal government for land to be used in the Garrison Dam reservoir.

The Eighth Circuit Court ruled at Minot that it found nothing in the record before the U. S. District Court at Fargo to warrant setting aside the lower court's verdict. Appellants argued that the options were obtained by the government under duress and through official pressure. Twelve landowners were involved.

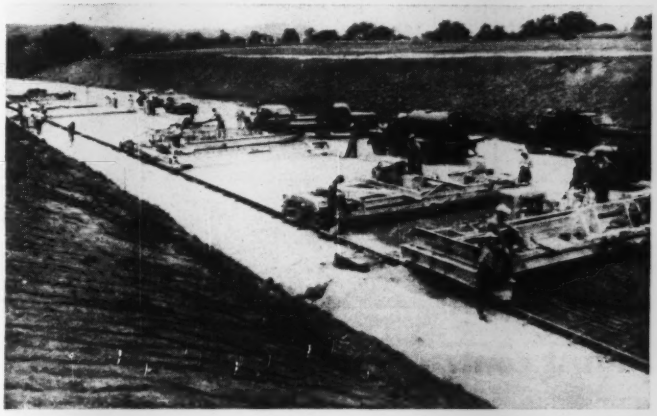
Virginia completes 121 primary highway projects

Virginia completed 121 projects—involving 241 miles of new construction on the primary highway system valued at $16,250,444—during the year ended last June 30. It had another 165 projects under way at the year's end, valued at $22,608,514. It re-surfaced, hard-surfaced or stabilized 3,250 miles on its secondary system during the same period.

Largest REA loan goes to Nebraska power system

Largest loan in the 13-year history of the Rural Electrification Administration—$8,412,000—went to Nebraska's Loup River Public Power District.

Completion of a steam-electric generating plant at Bellevue will use $3,000,000. The remainder will go into a 340-mi. transmission line program, switching and substations.



PENNSYLVANIA TURNPIKE EXTENSION east from Carlisle to a point near Philadelphia is being pushed by the Turnpike Commission. Here, workmen concrete a 24-ft. strip, one of two lanes which will be divided by a safety island, in Dauphin County, near Harrisburg. Nearly a mile can be laid daily. (Wide World Photo)

Turnpike extension to reach Ohio line

Pennsylvania will extend its turnpike west to the Ohio line near Petersburg regardless of what becomes of the traffic thereafter.

That's the assertion of a top official of the Pennsylvania Turnpike Commission. He asked that his name not be used because of "a political situation which is holding up appointment" of an Ohio Turnpike Commission. But the Pennsylvanian added:

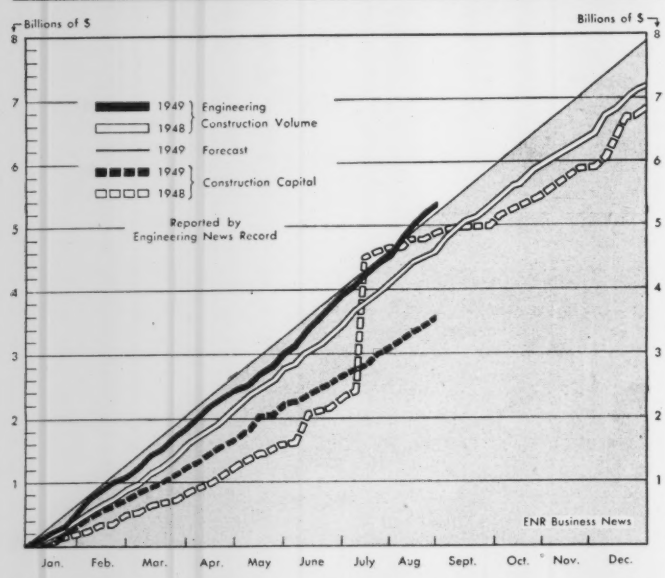
"We are going ahead with the western extension as planned. There is no valid reason why Ohio can't plan to handle the traffic by the end of 1951, when it is expected the western extension will be completed."

This statement followed reports that Ohio would ask that the extension be halted at Homewood, Pa., to prevent too much traffic from being turned onto existing roads at Petersburg, O., where roads might be inadequate to handle the volume.

Eastern extension of the Turnpike, from Carlisle to a point near Philadelphia, was moving rapidly ahead, this week, but a long delay was foreseen for the projected extensions from Pittsburgh to Erie and Carlisle to Scranton.

Commission Chairman T. J. Evans said these extensions are prohibited for at least four years because of terms of the existing Turnpike's bond indenture. It prohibits any further Turnpike Commission construction until two years after completion of the western extension. The idea is to prevent the Commission from amassing a top-heavy debt structure it might be unable to service. Erie and Scranton extensions have been approved by the Legislature, but traffic counts will have to demonstrate that the roads will be financially feasible before construction will be undertaken, Evans said. No counts have been made yet. The Commission is too busy on the two extensions.

CONSTRUCTION BUSINESS



August contract awards postwar peak

Heavy construction chalks up a new postwar record for contract awards in August, with an average volume of $195 million per week reported to ENGINEERING NEWS-RECORD. This brings total heavy construction for the first eight months of 1949 to $5.36 billion, 20 percent above a year ago.

The previous high 1949 month for engineering construction was June, when awards averaged $179 million—but this has now been topped by 9 percent. The record August volume is a whopping 39 percent greater than during the same month last year.

Both private and public heavy construction was booming in August.

Postwar record state and municipal construction activity boosted the public total to $102,494,000—a new high for this year—despite federal volume of only $18,541,000 weekly. At $83,953,000 a week, state and municipal awards are 33 percent higher than a year ago, while federal volume is four percent less. Private contract awards rose to $92,860,000 weekly, 59 percent above August, 1948, and narrowly missing the February, 1949, peak.

August has been the biggest month for heavy building since the war. All-told, more than $459 million in commercial, industrial and public contract awards were made during the month. Broken down, they line up as follows: Industrial building is tops for 1949 at $37,198,000 weekly, and next to the postwar peak in October, 1948. Commercial building averaged $41,202,000 a week, in a 16 percent increase over July, and 47 percent above 1948. And public building at $36,445,000 a week, is fractionally below July and 12 percent less than the January, 1949, postwar record.

Highway construction averaged $28,531,000 weekly during the month, only slightly below the postwar high of $28,861,000 a week established in July. Waterworks made a new high mark at $13,054,000 weekly, 46 percent above the old postwar high of May 1948. Sewerage contract volume at $7,493,000 a week is the top for 1949.

New construction money from security sales in August was the second highest this year, averaging $120 million a week.

ENGINEERING CONSTRUCTION CONTRACTS REPORTED TO ENGINEERING NEWS-RECORD—AUGUST, 1949

Engineering News-Record *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $28,000; *other public works* $50,000; *industrial buildings,* $68,000; *other buildings,* $250,000

Four Weeks—Thousands of Dollars (000 Omitted)

	August, 1949						U. S. Cumulative Eight Months			% Change	
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1949 (34-weeks)	1948 (35-weeks)	'48 to '49 Aver. Wk.	Canada Aug. '49
Public Works											
Waterworks	335	45,150	2,090	268	3,224	1,148	**52,215**	**147,300**	131,612	+ 15	1,398
Sewerage	670	11,950	2,307	6,820	3,263	4,963	**29,973**	**173,975**	153,440	+ 17	380
Bridges	2,543	10,751	2,725	1,199	3,708	733	**21,739**	**210,102**	195,367	+ 11	697
Earthwork and waterways	161	982	3,963	547	7,938	18,828	**32,419**	**383,016**	350,910	+ 12	166
Streets and roads	2,955	29,312	18,028	12,005	25,602	10,221	**98,123**	**620,430**	699,402	− 9	1,360
Public buildings, residential	6,172	17,700	2,080	1,149	13,327	.....	**40,428**	**289,503**	72,922	+309	17,394
Other public buildings	749	30,379	35,781	11,014	13,432	13,996	**105,351**	**806,295**	641,599	+ 29	10,700
Unclassified	677	1,340	1,935	2,924	20,645	2,207	**29,728**	**224,768**	150,748	+ 53	3,093
Total public	**14,262**	**147,564**	**68,909**	**35,926**	**91,199**	**52,116**	**409,976**	**2,855,389**	**2,396,000**	**+ 23**	**35,878**
Federal government (included in above classifications)	398	6,031	20,957	1,095	25,121	20,561	**74,163**	**735,095**	679,609	+ 11	13,487
Private											
Bridges	.....	.....	.....	.....	240	.....	**240**	**3,503**	2,485	+ 45	100
Industrial buildings	787	34,712	3,810	27,123	21,763	60,595	**148,790**	**699,933**	649,978	+ 11	11,879
Com'l buildings, residential	2,305	29,709	19,589	14,657	33,169	9,528	**108,957**	**1,121,155**	941,159	+ 23	2,876
Other commercial buildings	2,352	20,202	4,601	10,534	15,334	2,828	**55,851**	**385,909**	325,152	+ 22	2,368
Unclassified	185	127	78,384	6,740	13,436	9,730	**57,602**	**294,938**	296,106	+ 3	3,762
Total private	**5,629**	**84,750**	**55,384**	**59,054**	**83,942**	**82,681**	**371,440**	**2,505,438**	**2,214,880**	**+ 11**	**20,985**
Total Engineering Construction:											
August, 1949—4 weeks	**19,891**	**232,314**	**124,293**	**94,980**	**175,141**	**134,797**	**781,416**	.....	.....	.....	**56,863**
July, 1949—4 weeks	35,688	133,902	88,419	71,240	211,668	78,525	**619,442**	.....	.....	.....	58,747
August, 1948—4 weeks	32,406	150,131	66,862	92,313	145,939	76,141	**563,792**	.....	.....	.....	55,514
Eight Months—1949	**230,966**	**1,352,654**	**801,292**	**683,036**	**1,422,546**	**870,333**	.....	**5,360,827**	.....	**+ 20**	**414,652**
Eight Months—1948	210,290	1,272,373	720,568	568,690	1,199,587	639,432	.....	.....	4,616,880	.....	307,329
% Change '48 to '49	+13	+9	+14	+23	+22	+40	.....	.....	.....	.....	+39

BIDS AND BIDDERS

Housing—Passaic Housing Authority, Passaic, N. J., plans 2,000-unit low-rent housing project at $10,000,000. Kelly & Gruzen, Newark, N. J., are architects.

York River Bridge—Virginia State Highway Dept. has received low bids for constructing the York River Bridge, York and Gloucester Counties, the largest project ever undertaken by the State of Virginia. Massman Construction Co. and Kansas City Bridge Co., both of Kansas City, Mo., were low bidders on substructure at $4,690,232; Virginia Bridge Co., Roanoke, Va., was low on superstructure at $2,424,711. Contracts will be awarded after Oct. 1.

Hospital—University of Washington, Seattle, plans constructing hospital at Seattle to cost $10,000,000. Naramore, Bain, Brady & Johnson and McClelland & Jones, Seattle, are architects.

Navy Projects—Bureau of Yards & Docks, Navy Dept., Arlington, Va., plans constructing quay and services, with timber bulkhead, dredging and revetment work, as well as improving existing facilities at Carrier Base, Mayport, Fla., to cost about $5,000,000. Plans are also underway for improving Navy Bulk Fuel Oil Terminal Plant at Jacksonville, Fla., including roads, utilities, facilities for dispensing oil, and dredging at $2,000,000.

Highway—Compania de Construcciones, Astra, Quito, Ecuador, will build 110 kilometers of Quito-Quinindc-Esmeraldas Highway in Ecuador at about $2,000,000. Work is being done for the Republic of Ecuador.

Courtland Canal—Terteling & Sons, Inc., Boise, Idaho, has been awarded contract for earthwork, concrete canal-lining and structures, Courtland Canal, Bostwick Division, in Republic River, Kansas-Nebraska, by the Bureau of Reclamation, Denver, Colo., at $1,265,951. This project is part of the Missouri River Basin project.

Enlarging Channel—U. S. Engineers, Detroit, will start plans immediately to enlarge 12 miles of Red Run Channel to cost about $1,000,000. The project has been authorized by Congress and $500,000 allotted.

Metropolitan Musem—Department of Parks, City of New York, plans reconstructing Wings A, B and C and constructing new Wing Z at Metropolitan Museum of Art, to cost about $3,000,000. Robert B. O'Connor and Aymar Embury II, of New York, are architects and Tuck & Eipel, of New York, are engineers.

Sanatorium—Bids will be opened Oct. 1, by the State of Virginia, Richmond, for enlarging Catawba Sanatorium, near Salem, Va., at about $2,000,000. Brown, Wells & Meagher and Joseph H. Saunders, Alexandria, are architects.

Pennsylvania Turnpike—Pennsylvania Turnpike Comn., Harrisburg, awarded contracts for sections of Turnpike in Cumberland County to Johnson, Drake & Piper, New York, N. Y., at $2,612,857 and to Central Pennsylvania Quarry & Stripping Co., Hazelton, Pa., $3,282,516.

Veterans Hospital—U. S. Engineers, Pittsburgh, Pa. will take bids about Nov. 15 for 1,000-bed Neuropsychiatric Hospital, at Pittsburgh, including administration, general medical and surgical building and others.

Residences—Royal Jackson, Inc., Cincinnati, O., will construct 123 residences in Grosbeck, near Cincinnati, O., by own forces, $1,230,000.

Student Union Building—University of Oklahoma, Norman, Okla., awarded contract for the construction of Student Union Building to Manhattan Construction Co., Oklahoma City, Okla., at $1,581,667. Sorey, Hill & Sorey, Oklahoma City, are architects.

Urban Highway System—New Mexico State Highway Commission, Sante Fe and City of Las Vegas, N. M., plans Urban Highway System including concrete curbing, gutters, asphalt surfacing in Las Vegas at about $1,000,000. Hasie & Green Engineering Co., Lubbock, Tex., is engineer.

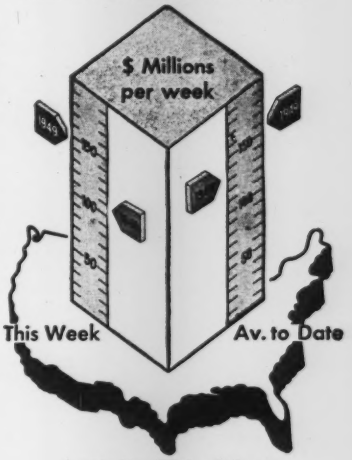
Apartment—V. N. Jones, Seattle, Wash., plans 14-story apartment in Portland, Ore., to cost $2,772,300.

Medical-Dental Building—G. E. Teufel, Seattle, Wash., has been awarded contract for 14-story addition to Medical-Dental Building in Seattle, Wash., by the Metropolitan Building Co., Seattle. The estimated cost is $1,300,000. S. Ivarsson, Seattle, is engineer and W. H. Fay, Seattle, is architect.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Sept. '49	479.78	230.63
Building Cost	Sept. '49	351.92	190.24
Volume	Aug. '49	352	154



Activity This Week

As reported to ENR (in millions of dollars)

Amount of Contracts let

	Week of Sept. 8 1949	Cumulative 1949 (36 wks.)	Cumulative 1948 (37 wks.)	% chge av.wk.
Federal	$9.2	$785.0	$703.7	+15
State & Mun	49.0	2,224.7	1,847.4	+24
Total Public	$58.2	$3,009.7	$2,551.1	+21
Total Private	88.4	2,652.9	2,313.5	+18
U. S. Total	$146.6	$5,662.6	$4,864.6	+20

Contracts by type of work

	This Week	Cumulative 1949 (36 wks.)	Cumulative 1948 (37 wks.)	% chge av.wk.
Waterworks	$3.9	$153.9	$145.7	+9
Sewerage	1.9	183.7	158.5	+19
Bridges	3.5	220.5	206.1	+10
Highways	24.3	664.6	740.1	−8
Earthwork, Waterways	8.2	416.8	367.3	+17
Buildings, Public	10.0	1,138.3	765.6	+53
Industrial	17.4	743.7	686.6	+11
Commercial	66.7	1,602.4	1,317.1	+25
Unclassified	10.7	538.5	477.7	+16

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1949 (35 wks.)†	Cumulative 1948 (36 wks.)	% chge av.wk.
NON-FEDERAL	$3,656.5	$3,352.3	+12
Corporate Securities	1,674.0	1,522.5	+13
State and Municipal	1,982.5	1,337.5	+52
U. N. Building Loan	....	63.0	...
Federal-Aid Highway	(385.0)*	427.3	...
Federal	(621.8)*	1,558.9	...
Total Capital	$3,656.5	$4,911.2	−23

† Ending week of Sept. 1st.
* Appropriated in week ending Sept. 8th—not included in 35-week total. Security sales not available for week of Sept. 8th.

AT THE START the site of a new housing project was waste desert land, sparse vegetation its only salient feature . . .

The Richland Story—Part I
Town Development and Management

L. L. Wise
Assistant Editor

TOWN MANAGEMENT at Richland, Wash., gives more than average weight to the human equation. That's because Richland's residents—the scientists, craftsmen and workers so vital to the operation of the Atomic Energy Commission's plutonium - producing Hanford Works—must be kept contented. Its a problem closely paralled in Oak Ridge, Tenn. (ENR July 21, p. 48 and Aug. 18, p. 48).

The job of keeping some 8,000 important workers and their families happy isn't easy. Richland's isolated location makes it difficult. So does the fact that workers have no elective voice in town government.

Town officials, therefore have to work hard to make the government-built-and-owned community as pleasant and comfortable as possible for the 25,000 inhabitants. They are providing—among other things—attractive homes, convenient and complete shopping facilities, excellent schools and thoughtfully-planned recreation facilities.

Also involved in the intangible but vital matter of worker contentment, is the provision of adequate and complete municipal services, such as water supply, sewage disposal and garbage collection. This article will discuss the town and its construction and operational problems. Subsequent articles will cover water supply and sewage and garbage disposal.

Richland is a desert community located in the south-central portion of Washington at the confluence of the Columbia and Yakima rivers. (Water from McNary Dam about 60-miles downstream will back up to the town.) Summer weather is dry and hot, and almost all of the rainfall (5.61 in. per year) comes in the winter months. The water supply problem is complicated by need for both irrigation and air-conditioning water.

The location of the 620-sq. mi. Hanford Works was selected for several reasons: its isolation, a small number of residents to be displaced, an available electric power supply from Grand Coulee and Bonneville dams and eventually from McNary too, and availability of cold water (average flow of the Columbia here is 115,000 cfs.).

Two-stage development

Richland was developed in two stages. In the first, from 1943 to 1945, it was built from a farming center of 250 population to a bustling community of 15,000. Concurrent with this initial development was the ultra-secret wartime construction of the $350,000,000 Hanford Works.

In 1947, a large expansion program was undertaken in the plutonium-producing area, and by 1949 living facilities for an additional 10,000 people were added. Richland houses only the permanent personnel for Hanford Works and for concessionaires in Richland. Or, as the AEC puts it, "employees and their families unable to find living accommodations in towns nearby." Those towns—Pasco and Kennewick—are no bargains since both have mushroomed and become overcrowded because of the Hanford Works development.

Temporary construction personnel (45,000 of them) during the initial construction were housed at Hanford, 25 mi. north of Richland. Hanford is now a ghost town—completely abandoned—because it lies inside the restricted area where plutonium is made.

For the current construction program, the town of North Richland was founded 5 mi. from Richland. With a peak population of 13,000, North Richland had the distinction of being the world's largest trailer camp —almost 2,200. Other contractor employees are housed in 222 prefab houses (for supervisory employees) and in row on row of barracks buildings (for single employees). Part of the barracks came from Hanford; part were floated up the river from Pasco Naval Air Station.

Richland and the Hanford Works were originally built and operated by

. . . BUT SIX MONTHS LATER it has become an integral part of a thriving community of manufacturing workers.

Du Pont. In 1946, the General Electric Co. took over under a 68-page agreement that gives them operating expenses plus $1.00.

Richland, fact and fancy

Because it is associated with what is probably one of the most important federal functions at this time—that of producing atomic materials and weapons—much has been said in recent months about Richland that is at the same time partly true and partly false.

An example is the widely broadcast statement that the 1947-49 construction program at the Hanford Works is "the largest peace time construction program in the history of the United States." This has some basis in fact. The AEC in its third semi-annual report to Congress said "The plant additions at Hanford with necessary residential, administrative, service, technical and production auxiliaries constitute one of the largest construction programs ever undertaken by the government in peace time."

Note that the official statement of the commission says that this is *one* of the largest peace time construction programs. Apparently the press agents and newsmen omitted—or chose to omit—the consideration that this was just one of the largest such programs, and tabbed it as the largest—bar none.

Work on the gigantic Columbia Basin project just across the Columbia River from Hanford will certainly total much more than the $237,000,000 that this postwar program at Hanford is officially stated to cost.

Another example is the criticism of the $3,000,000 Carmichael High School—a 650 pupil school. This may well have involved a greater per-pupil expense than the national average, but intangibles enter this operation that don't affect normal school building activities. Without full knowledge of such intangibles as the importance of education of children to contentment of the population, criticism of expense involved should be reserved. This is all part of the high cost to the government of operating the town.

Community subsidized

Historically, there has been a subsidy for living in Richland paid by the federal treasury. This was absolutely necessary at the beginning, and is undoubtedly necessary now to attract and keep proper competent personnel. Expensive schools must be included as part of this cost.

Providing homes for workers is also part of this subsidy. Until recently the homes and all services were provided for a nominal fee. However, rents now have been adjusted to conform more closely to those in surrounding communities, and to better reflect differences in house types and desirability of location.

With this rent adjustment, tenants will now provide their own fuel for heating, and do minor maintenance work. Water and electricity are supplied at a flat rate.

However, even with these costs now borne by renters, the facilities at Richland are still better than are available at like cost to industrial and office workers elsewhere. This difference in cost is paid for by the government.

In spite of seemingly high costs, a recent survey published in the Spokane DAILY CHRONICLE indicates that of all the AEC towns Richland is operated on the cheapest per capita basis.

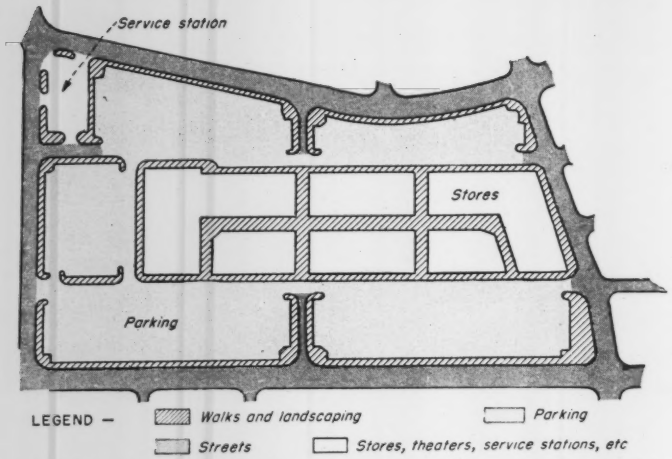
Town management by edict

One of the toughest problems facing the Richland community division of the General Electric Co. is that of providing effective town administration. This has to be done—and public support developed—by dicta and edict, without elected officials directly responsible to the electorate. As a partial solution, a town council was elected last fall. This is composed of 9 members, five representing specific districts, and four elected at large. Because Richland is owned entirely by the government, this council can act only in an advisory capacity.

So far, problems the council has considered include such things as off-street parking and dog licensing. Although there has been some talk of an attempt by residents to incorporate the town, this is believed to be highly impractical. An incorporated town would have to have police officials and others that would of necessity be supported from tax money. Where such taxes would come from is questionable.

Should the town incorporate, it would undoubtedly be necessary to break it up into lots and sell the homes to the occupants. No lot survey has ever been made in Richland, and marking of boundaries may be difficult. Some occupants have built hedges and fences at their own expense, and many of these would not correspond to natural property lines.

The only official elected body in the town is the school board. This board functions as does any other in



A model shopping area being developed in Richland will include shops surrounded by parking areas. The stores will open on a central promenade to facilitate access.

the state of Washington except in the matter of school buildings. In this case the board acts as prime contractor for the AEC, and buildings are built with government funds and remain the property of the government. Operating expenses come from tax monies from the state of Washington supplemented by the funds from the AEC.

All police in the city of Richland are deputy sheriffs of Benton County. Their salaries are paid by the government through the General Electric Co. When any civil law is broken, the offender is tried before the regular county courts of Benton County. Resulting fines from court action accrue to the county.

Developing commercial facilities

Another problem in the city of Richland is development of substantial community shopping facilities. During the war, all store buildings were built, equipped and maintained at the expense of the government. This was necessary because of the indefinite nature of the program. Now that the AEC has planned the operation of Richland as a permanent community, long-term leases are let to businessmen who provide their own buildings, maintenance facilities and equipment —subject, of course, to building code compliance.

To make this system effective, a complete rounded group of commercial services must be offered. The only jeweler in Richland says, for example, that he would welcome two or three more jewelry stores. With only one jeweler in town, people have no basis of comparison for prices or services, and so go to Pasco or even Spokane or Portland to do their shopping. The same obtains with other commercial enterprises.

The north-central commercial area now being developed will supplement other facilities and be a model shopping area. A complete variety of stores will be built around a central promenade that will be closed to autos and attractively landscaped. Completely surrounding the store building group will be parking areas.

Many of the contracts for business ventures in this north-central area have been signed. Several stores are already operating and more will be before the end of the year. Space is available for a variety store, a department store and a supermarket. Richland management also hopes to sign contracts with automobile dealers for the area.

Smaller shopping areas consisting of grocery and drug stores and the like are spotted throughout Richland in the various neighborhood districts for convenience.

Homes essential too

How about the homes? Including the 1947-49 building program there are 5,583 family dwellings in Richland plus some 55 "tract houses" (these were part of Richland before 1943 and are still habitable) and accommodations in dormitories for 1,000 single persons.

The original program involved 3,840 family dwellings broken down as follows: pre-fabs—1,333, standard duplex—1,856, and standard detached—651. In the 1947-48 program there were 843 homes built, and the 1948-49 program involves 1,000 ranch-type homes. To date there are more applicants than homes. This indicates the possibility of a continued building program.

All of these homes are attractive and very livable. Almost without exception, the occupants have landscaped their grounds—although finding plants that will stand the prevailing desert wind is a problem.

About the only drawback this correspondent found was the complete lack of garages. Autos must be left outside to brave the elements and a new paint job every couple of years is practically a necessity.

Construction and management

In the operation of Richland and the Hanford Works, the General Electric Co. is referred to as a contractor—since they have a contract with the AEC. Actual construction is done by sub-contractors to G.E.—and there are dozens of sub-contractors and sub-sub-contractors.

Foremost among these is Atkinson-Jones (a joint venture of Guy F. Atkinson Co., San Francisco, and J. A. Jones Construction Co., Charlotte, N.C.). This firm has the major contract for work in the plutonium plant area. E. B. Skeels heads up the Atkinson-Jones forces.

In Richland, Nettleton-Sound built 1,000 ranch-type homes. This firm is headed by L. E. Baldwin, and is a combination of Nettleton-Baldwin-Anderson, Inc., and Sound Construction and Engineering Co., both of Seattle, Wash.

Other contractors include Morrison-Knudsen, Co., Inc., Boise, (industrial plant construction); L. G. McNeil Co., Los Angeles (Richland school expansion); J. A. Terteling & Sons, Inc., Boise (Richland services and utilities); and C. C. Moore and Co., San Francisco (boiler plant installations).

AEC manager of the Hanford Works is Fred C. Schlemmer, a veteran TVA dam builder. He was resident engineer on several TVA dams including Norris Dam.

George R. Prout is vice-president of the General Electric Co. and general manager of the Nucleonics Department that runs Hanford. Frank R. Creedon has headed up the G.E. design and construction division at Hanford, and Earl L. Richmond is Richland community manager for the General Electric Co.

Facilities Control School Building Costs

THE EXTENT of the facilities to be provided is the controlling factor in the wide variance of costs of constructing schools in the United States.

Developed in a pilot survey by ENGINEERING NEWS-RECORD, this cost-facility relationship is the basic reason why:

1. New elementary schools now being put under contract show costs per student served ranging between the extremes of $193 and $1,995. Stating it another way, costs for these schools ranged between $5.49 and $21.79 per sq.ft.

2. For Junior high schools, costs per student were between $565 and $2,044; or from $9.12 to $18.50 per sq.ft.

3. For high schools, cost per student were between $249 and $1,801; or $4.16 to $13.11 per sq.ft.

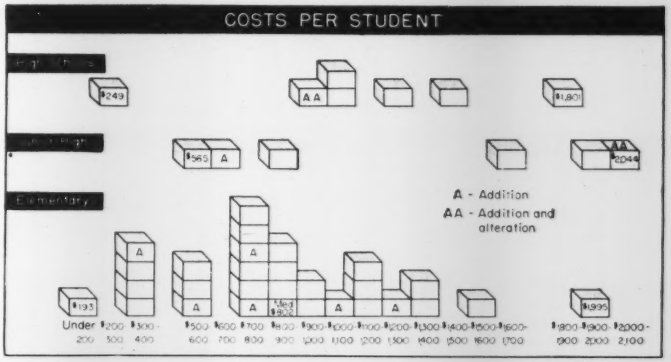
Cube costs, of course, also showed a similar wide range: From $0.42 to $1.245 for elementary schools; $0.53 to $0.97 for junior highs; $0.54 to $0.94 for high schools.

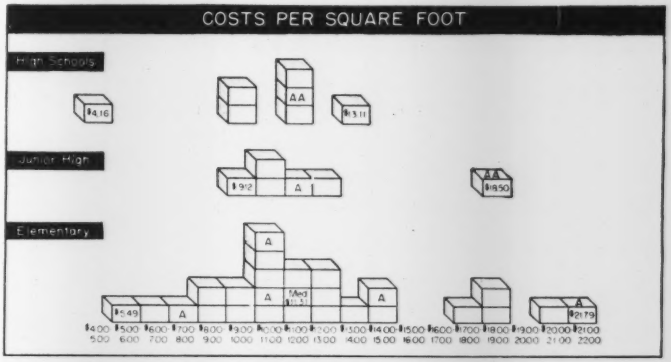
The ENR survey covered 29 elementary schools, 6 junior high schools, 7 high schools and 3 college buildings. The college buildings (a field house, gymnasium and electrical engineering building) showed these costs: $9.98 per sq.ft. for the field house and gymnasium and $19.37 for the engineering building (including aluminum and brick construction, elevators and utility tunnels). On a cube basis, costs were $0.32 for the field house and gymnasium and $1.49 for the engineering building.

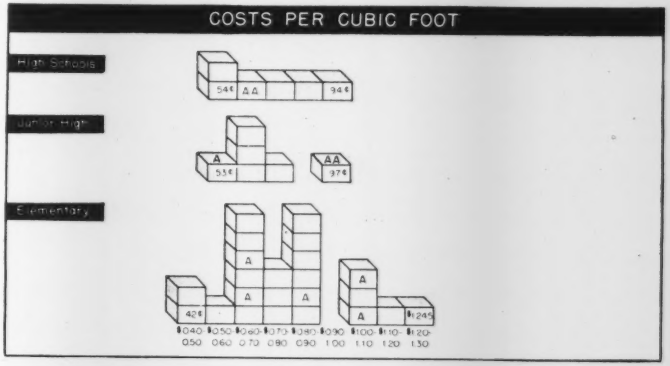
School construction costs are measured three ways: as (1) cost per student, (2) cost per square foot, and (3) cost per cubic foot in this study.

The 45 schools represented in this study are in 18 states and the District of Columbia. By and large the schools south of the Ohio River and west of the Mississippi cost less than $1,000 per student and those north and east more than $1,000. Federal schools in Tennessee and high-schools in Texas and Virginia are exceptions to the under-$1000 record. Two schools in Pennsylvania, one in Ohio and one in Massachusetts are exceptions to the over $1000 per student pattern for new schools in the Northeast. In addition to the new schools, the charts show where the additions, alterations and temporary structures are and what they cost per student.

The high, low, median schools are described in the following test. Every school is shown in the tables, its size, cost and facilities.







ELEMENTARY SCHOOLS

The elementary schools studied range in size from a 100-student school in Wyoming to a 2,640 student school in Los Angeles. The Wyoming school, a 2-story, brick and reinforced concrete addition to an existing building providing four classrooms and a cafeteria, cost $508 per student, or $14.26 per square foot.

The 2,640-student school costs $193 per student or $5.49 per square foot. It consists of emergency port-

SCHOOL CONSTRUCTION COSTS – I

Compiled by Engineering News-Record

Location	Date 1949	No. of Students	COST Unit Cost Per Student	Sq.ft.	Cu.ft.	Total Contract	COST DISTRIBUTION % Found. Supr Str.	Elec.	Plumb.	Heat	BUILDING DIMENSIONS Stories	Main Bldg.	Wings
ELEMENTARY SCHOOLS													
Riverton, Wyo.	Apr.	100	$508	$14.26	-	$50,820	91		9		2 *	54x33	none
Cleveland, Ohio	Jan.	130	1211	21.79	$1.09	157,420	70	3	5	22	1&2	77x55 (1)	50.5x27 (2 st)
Warren, Ohio	Mar.	180	1395	-	0.89	251,171	77	5	6	11	1	55x203	64x74
Waynesboro, Va.	Apr.	210	562	8.55	0.63	118,066	79	7		13	1	181¼x57½	11½x42, 67½x38, 24½x 121/3, 38x131, 38x171
Woodstock, Ill.	May	275	1120	11.73	0.84	307,940	76	4	10	10	1&b	42x133	
S.San Francisco, Calif.	June	280	763	9.48	-	213,992	71.6	6.1	9	13.3	-	open plan,diffen. diff. to show	
Longmont, Colo.	May	300	750	10.92	0.64	225,000	-	-	-	-	1	62x280	52x60
Longmont, Colo.	May	300	713	10.38	0.61	214,000	-	-	-	-	1	62x280	52x60
McKeesport, Pa.	Apr.	350	858	20.00	-	300,185	71	6	7	16	2&1	129x62 (2)	72x66 (1st)
Cleveland, Ohio	48 May	370	938	18.06	1.05	347,163	80	3	6	11	1	100x182	40x45 (1st)
Cicero, Ill.	Nov.	380	1995	17.86	-	758,000	81.8	3.7	4.6	9.9	2	55x115	25x96, 25x96, 38x65 (1st)
Troy, Ohio	Feb.	400	1174	12.14	0.75	469,518	79	6	5	10	2½	92x210	none
Torrance, Calif.	May	400	842	9.78	0.80	359,215	79	7		14	1	34x178	31x318, 31x237, shop 31x50
Muncie, Ind.	Mar.	410	1064	-	1.00	436,164	70	8		22	1&2	40x222	59x93 (1st)
Wilbraham, Mass.	Mar.	480	916	13.61	0.60	439,880	78	4	6	13	1&b	89x110	58x116, 57x129
Elmira, N.Y.	June	500	1165	21.11	0.85	582,629	78	7.7	5.1	9.2	1&2	176x58 (2)	83x70, 46x30 (1st)
Neligh, Nebr.	May	500	511	12.17	1.245	255,618	-	-	-		2	58x161	8x34, 34x34
San Carlos, Calif.	'48 Jul	500	378	7.29	0.81	189,160	-	-	-	-	1	—	30x324, 30x324
Van Nuys, Calif.	June	505	346	8.02	0.64	174,897	78	7	12	3	-	—	—
Oak Ridge, Tenn.	'48 Jun	525	1639	14.19	-	860,698	75.5	7.9	7.1	9.5	1&2	59x100 (2)	31x337(2) 42x120 (1) 30.2x73 (1)
E.Bridgewater, Mass.	May	540	760	11.31	0.75	410,446	77	4	8	11	2½	81x167	none
Oak Ridge, Tenn.	Feb.	550	737	10.15	-	405,304	73	9		18	1	71x108	36x29, 57x505, 24x90
Council Bluffs, Ia.	Apr.	600s	866s	12.48	0.64	519,799	79	4		17	2	238x58	90x78
Great Neck, L.I.	May	720	347	10.78	0.59	249,648	69	9	7	14	1	84x28 (ea)	152x24½, 152x24½, 96x5 corridors, tool rm. 28x28 (ea)
Washington, D.C.	Mar.	800	802	10.59	0.80	641,500	75	4	12.3	8.7	3&lb ph	235x57.5	81x55 (Aud-Gym)
Washington, D.C.	Jan.	900	719	11.24	0.835	647,497	80	3	7	10	3&1	177x56½b	50x34, 50x34 58x50 (1st)
Miami, Fla.	May	900	345	6.99	0.47	310,936	-	-	-	-	1&2	261x59	155x58, 97x58, 161x74, 54x54 (2nd floor)
New York City, N.Y.	Jan.	1309	1332	18.79	1.15	1,841,902	78	10	6	6	3	193x202	none
Los Angeles, Calif.	July	2640	193	5.49	0.42	508,637	77.7	4.4	14.8	3.1	-	—	—

* also a high school
b basement
ph penthouse
st story
s Based on 30 students in rooms large enough to accomodate 40. At ultimate capacity per student cost goes down to $740.

able buildings with plywood interior, fiberboard ceilings and mudsills set on earth. The only facilities provided are 78 recitation classrooms.

The highest cost per student—$1,995—was shown at the St. Francis of Rome School in Illinois. This structures includes its own power house, auditorium, library, cafeteria, visual education room, eight recitation rooms, two special instruction rooms, three administration and teacher rooms.

The middle third, roughly, in per-student investment is between $700 and $1,000. The buildings in this general range cost between $10 to $13 per sq. ft. and over half of the grade schools cost between $0.60 and $0.90 per cu.ft.

In the matter of cost per student, the median school of the twenty-seven studied is one in Washington, D. C. It's construction contract is for $641,500; its student capacity 800; its unit costs $802 per student, $10.59 per sq. ft., $0.80 per cu.ft. It is a new school, built of brick and reinforced concrete, with a three-story main building 235x57.5 ft., basement and penthouse. The combination auditorium and gymnasium is in an 81x55-ft. wing. The school provides, in addition, 21 recitation rooms, 4 special instruction rooms, nine administration and teacher rooms, a library and a play-room that may also be used as a lunch room.

The median school in cost per sq. ft. is a $410,446 building designed to serve 540 students in Massachusetts. It costs $11.31 per sq. ft., $0.75 per cu. ft., $760 per student. Of brick and steel, it is an 81x617-ft., 2½-story building that provides 18 recitation rooms, one special instruction room, eight administration and teachers' rooms and an all-purpose room.

The cost-per-cubic-foot median is $0.80—shared by two schools, one in Torrance, Calif., and the other in Washington, D. C., (the Washington school is mentioned above as the median school for cost per student).

The California school, serving 400 students, costs $359,215: $842 per student, $9.78 per sq. ft. It provides 12 recitation rooms and a kindergarten, four special instruction rooms, five administration and teacher rooms, a combination gymnasium and auditorium, a cafeteria, and a shop. It is a one-story structure with steel frame, wood and plaster walls, concrete floors, controlled natural and artificial lighting, radiant heating.

Distribution of costs

Foundations and superstructure contracts take from 69 to 81.8 percent of the total construction contract money in the elementary school group, with a median of 77 percent.

Electrical work ranges from 3 to 10 percent, 6 percent median.

SCHOOL CONSTRUCTION COSTS — II

Compiled by Engineering News-Record

ELEMENTARY SCHOOLS Location	No. of Rooms: Recit. *home*	Special Instr.	Adm. & Teacher	FACILITIES PROVIDED: Aud.	Gym	Library	Cafeteria	Play rm.	Other	TYPE OF CONSTRUCTION: New	Add'n	Materials
ELEMENTARY SCHOOLS												
Riverton, Wyo.	4	—	—	—	—	—	x	—		—	x	Brick & concr., reinf.concr.
Cleveland, Ohio	14+k	—	6	—	(comb)	—	—	—	Soc. Science	—	x	Brick, steel, concrete
Warren, Ohio	6	—	3	—	—	—	x-k	x	(Cafet-Kindgtn comb.)	x	—	Brick, steel, reinf. concr. L-1
Waynesboro, Va.	7	—	3	—	—	x	x	—	—	x	—	Brick and concrete
Woodstock, Ill.	11	3	4	x	—	x	(comb)		—	x	—	Brick and steel
S. San Francisco, Calif.	8	—	8	(comb		x	comb)		Aud-gym-cafet-play room combined	x	—	Concr., light steel joists
Longmont, Colo.	12	—	3	—	x	—	—	—	—	—	x	Brick & concr., wood roof
Longmont, Colo.	12	—	3	—	x	—	—	—	—	—	x	Brick & concr., wood roof
McKeesport, Pa.	9	1	2	(comb)		—	x	x	—	x	—	Brick & steel roof is floor for future expansion C-1
Cleveland, Ohio	7+k	—	4	(comb)		—	—	—	Coal burn. steam boilers	x	—	Brick & steel roof is floor for future expansion C-1
Cicero, Ill.	8	2	3	x	—	x	x	—	Power House, Visual Education Room	x	—	Reinf. concr. & str. steel
Troy, Ohio	13	5	3	(comb)		x	x	—	Music & Prac. Arts	x	—	Brick and concrete
Torrance, Calif.	12+k	4	5	(comb)		—	x	—	Shop	x	—	Steel frame, wood & plaster walls, concr. floors, L-2
Muncie, Ind.	10+2k	—	—	(comb)		—	—	—	—	—	x	Brick, steel, reinf. concr.
Wilbraham, Mass.	12	3	3	(comb)		—	x	—	2 locker & shower rms.	x	—	Cinder bl. Br. fcg, concr. slab on grade, bar jsts & slab roof
Elmira, N. Y.	13	4	17	(comb)		x	—	—	—	x	—	Brick and steel
Neligh, Nebr.	18	—	1	—	—	—	—	—	(Grade & high sch. comb.)	x	—	Brick & concr.
San Carlos, Calif.	15	—	5	—	—	x	—	—	—	—	x	Steel frame, wood studs, siding, plywood
Van Nuys, Calif.	13+2k	—	2	—	—	—	—	—	—	x	—	10 Bldgs Frame, Stucco concr. fdns. floors
Oak Ridge, Tenn.	15+3k	3	4	(comb)		x	x	—	Medical clinic	x	—	Reinf. concr., & concr. masonry
E. Bridgewater, Mass.	18	1	8	—	—	—	—	—	all purpose room	x	—	Brick and steel
Oak Ridge, Tenn.	18+2k	2	4	(comb)		x	-h	—	Medical clinic, (cafet., home ec. comb.)	x	—	Concr. masonry, brick veneer
Council Bluffs, Ia.	19	2	3	(comb)		—	x	—	—	x	—	Brick and concrete
Great Neck, L. I.	18	2	2	—	—	—	—	x	(2 prefab. schools)	x	—	Pre-fab frame
Washington, D. C.	21	4	9	(comb)		x	— (comb. with lunchroom)			x	—	Brick & reinf. concr.
Washington, D. C.	25	1	6	(comb)		x	— (comb. with lunchroom)			x	—	Brick & reinf. concr.
Miami, Fla.	30	—	8	x-c	—	x	x-a	—	(Audit-Cafet. comb.)	x	—	Concr., masonry, slab roof fireproof
New York City, N.Y.	37	—	11	x	x	x	* (comb)		-	x	—	Brick and concrete
LosAngeles, Calif.	78	—	—	—	—	—	—	—	-	Emergency portable bldgs. mudsills on earth plywood interior walls, fiberboard ceilings.		

A - auditorium
c - cafeteria
h - home economics
k - kindgarten

L-1 Bi-lateral lighting in 3 classrooms, 2 face No. clear glass; 1 face So. has light directional glass block above view and vent. sash.

L-2 Controlled Natural and Artificial Lighting. Radiant Heating.

C-1 Acoust. block ceiling, plastic walls, glazed tile walls. Corridors 5 ft. high, toilets to ceiling.

JUNIOR HIGH SCHOOLS

The junior high schools divide into two distinct cost-per-student groups, one ranging from $565 to $858 and the other from $1,688 to $2,044 per student.

The square-foot costs range between $9 and $12, and the costs per cubic foot work out fairly evenly between $0.50 and $1.00.

The low cost-per-student school is in Temple City, California—six frame-and-stucco, one-story buildings, designed to serve 550 students in 10 classrooms, 7 special instruction rooms, 9 administration and teacher rooms and 11 conference rooms. It costs $309,977, $565 per student, $9.12 per sq. ft. and $0.69 per cu.ft.

The highest cost per student junior high, $2,044, covers an addition to an existing school, but it includes major alteration and improvement of the old heating plant. It is a Baltimore, Md., structure of brick and steel costing $1,088,000, to serve 525 students. It provides 13 recitation rooms, two special instruction rooms, three administration and teacher rooms, an auditorium, a gymnasium, a cafeteria and a community use room.

A Washington, D.C., junior high school serving 1,000 students brackets three median categories. At $1,688 per student, it is on the upper side of one median. It is on the lower side of each median on square and cube costs at $10.74 per sq. ft. and $0.686 per cu.ft. This school is of one- and four-story, brick, steel and reinforced concrete construction, a main building and three wings.

The other three junior high schools in the median cost positions are: (1) just above the median in cube cost, $0.69, is the Temple City, California frame and stucco school described above as low in per student costs.

(2) on the upper side of the median in sq. ft. cost, $11.54, is a 3-wing addition and gymnasium, in Denver, Colorado, to serve 560 students.

(3) on the lower side of the median in per student cost, $858, is a Wilmington, California, school for 1,435 students. It is next to low in both square and cube costs, $10.54 per sq. ft. and $0.684 per cu.ft. It is 1 and 2 stories of reinforced concrete and concrete masonry, and it provides 24 recitation rooms, 17 special instruction rooms, six administration and teacher rooms, a gymnasium, library and cafeteria.

Foundations and superstructure take from 78 to 83 percent of the total cost of junior high schools, electrical work from 3.6 to 6.8 percent and plumbing and heating from 12.5 percent (in California) to 17.2 per cent (in Washington, D.C.).

SCHOOL CONSTRUCTION COSTS - I

Compiled by Engineering News-Record

Location	Date 1949	No. of Students	COSTS Unit Per Student	Sq.ft.	Cu.ft.	Total Contract	COST DISTRIBUTION % Found. & Supr Str	Elect.	Plumb.	Heating	BUILDING DIMENSIONS Stories	Main Bldg.	Wings
JUNIOR HIGH													
Baltimore, Md.	May	525	$2044	$18.50	$0.97	$1,088,000	-	-	-	-	-	-	-
Temple City, Calif.	Mar.	550	565	9.12	0.69	309,977	-	-	-	-	1	-	-
Denver, Colo.	May	560	670	11.54	0.53	375,058	82	4	14		2	-	67x83½, 67x83½, 64x100
Elmhurst, Ill.	Apr.	600	1907	12.13	0.797	1,144,000	78	6.8	5.2	10	1,2&3	221x450	62x259, 180x221
Washington, D. C.	'48 May	1000	1688	10.74	0.686	1,688,000	78.3	4.5	17.2		1&4	280x65	134x65, 100x105 (Aud), 98x169 1st. (Rec)
Wilmington, Calif.	June	1435	858	10.54	0.684	1,231,673	83.9	3.6	5.8	6.7	1&2	-	-
HIGH													
Plains, Texas	Mar.	250	$1020	$ 9.30	$0.54	$ 255,000	87	3	4	6	1	61x204	26x26, 35x52, 21x33 Gym 104x88 (1&2 st.)
Canton, Mass.	Mar.	430	1257	11.41	0.94	540,400	73	7	7	13	3&2	133x61 (3)	105x66 (2 st.)
Middleton, Wis.	Apr.	475	917	11.30	0.66	435,749	73	4	23		2	58x62	102x147, 64x60, 35x51
Norfolk, Va.	May	500	1081	9.75	0.59	540,288	78	7	15		1&2	198x66 (2)	132x63, 157x85, 90x74 (1 st. ea.)
Oak Ridge, Tenn.	June	1500	1660[d]	13.11[d]	-	2,490,734[d]	-	-	-	-	1&2	564x64 (2)	144x144 (2) 225x204 (1) 213x102 (1 st.)
Macon, Ga.	'48 Dec.	1600	249	4.16	-	398,000	80	4	7.5	8.5	1	6 bldgs. connected by covered passageways	
Euclid, Ohio	'47 May '47 Dec.	1800	1801	-	0.85	3,242,922	72	7	5	15	3	622x422	
COLLEGE													
Moscow, Idaho Agric. Sci.	June	200	3499	12.59	$0.91	$ 699,757	74.3	5.9	19.8		1&4½	230x52 (4½ st.)	67½x74 (1 st.)
Manhattan, Kans. Fld. Hse. & Gym	'48 Nov.	1000[a]	1627	9.98	0.32	1,626,754	89.2	2.4	8.4		1[a]&3	319x179	195x143 (3 st.)
Columbus, Ohio Elec.Engr.Bldg.	'48 May & Later	-		19.37[b] 15.73[c]	1.49[b] 1.21[c]	755,331 613,348	59[b]	9[b]	3[b]	10[b]	4	48x152	-

(a) Manhattan, Kans. — 15,000 max. capacity incl. spectators ($108 each for constr. cost). Locker facilities for 3,965 students. 1-story section 80 ft. high.

(b) Columbus, Ohio — includes elevators and utility tunnel.

(c) Columbus, Ohio — excludes elevators and utility tunnel, elevators 55 c./sq.ft., 4.3 c./cu.ft., 3% total cost, utility tunnel $3.09/sq.ft., 23.7 c./cu.ft., 16% total cost.

(d) see opposite page

ph penthouse.

HIGH SCHOOLS

High school costs reported show an extreme range from $249 per student to $1,801, but over half of the buildings cost between $900 and $1,200. These schools range in size from 250 students to 1,800.

The low cost-per-student is also low in its square foot cost of $4.16. It is brick and steel, modular construction, with radiant heat, designed to serve 1,600 students in Macon, Ga. (The brick is a local jumbo block.) Prefabricated wood trusses support roofs. Each classroom has one entire window wall. Six one-story buildings, connected by covered passageways provide 32 recitation rooms, six special instruction rooms, 11 administration and teacher rooms, a combination auditorium and gymnasium; library, cafeteria, shops, science labs, home economics labs. Contract for construction was awarded December, 1948, for $398,000.

At the other extreme is a high school in Euclid, Ohio, serving 1,800 students. Contracts totaling $3,242,922 were awarded in May and December 1947. This is the only school in the group that provides a swimming pool. It cost $1,801 per student and $0.85 per cu.ft. In addition to the swimming pool it has 65 recitation rooms, 15 special instruction rooms, 16 administration and teacher rooms, an auditorium, a gymnasium, library, cafeteria, playroom, band and choral rooms. It is a three-story, 622x422-ft. building of brick, steel and reinforced concrete with no wings.

The middle position in cost-per-student is held by the Norfolk, Va., high school, with 500 students. This school is also the lower of the two that set the median on sq. ft. cost and is next to the low on cube cost. It costs $1,081 per student, $9.75 per sq. ft. and $0.59 per cu. ft. It has a 2-story main building and three 1-story wings of brick steel and concrete construction. It provides 10 recitation rooms, 16 special instruction rooms, 4 administration and teacher rooms, an auditorium, gymnasium, library and cafeteria.

Foundation and superstructure in these high schools cost from 72 to 87 percent of the total. Electrical work ranges from 3 to 7 percent and plumbing and heating from 10 to 23 percent. The 10 percent is in Texas which has also the low of 3 percent in electrical work. This is a school for 250 students costing $255,000.

Heating and plumbing in the low-cost Macon, Ga., school took 16 percent of the contract total.

The Oak Ridge high school auditorium is designed to double as a municipal auditorium.

SCHOOL CONSTRUCTION COSTS — II

Compiled by Engineering News-Record

Location	No. of Rooms: Recit.-home	Special Instr.	Adm. & Teacher	FACILITIES PROVIDED: Aud.	Gym	Library	Cafeteria	Other	TYPE OF CONSTRUCTION: New	Add'n	Materials
JUNIOR HIGH											
Baltimore, Md.	13	2	3	x	x	-	x	Community use room	-	x&alt:	Brick & steel
Temple City, Calif.	10#	7	9	-	*	-	-	11 conference rooms	x	-	Frame & stucco
Denver, Colo.	16	2	*	-	x	-	enlarge existing	—	-	x	Brick & steel
Elmhurst, Ill.	20	7	10	x	x	x	x	Indoor bicy. stge, Band Rm, Art Rm, 8 Confer. Rms, Music Rm, Visual Education	x	*	Brick, steel, concr., reinf. concr.
Washington, D.C.	26	19	14	x	x	x	x	Recreation Room	x	*	Brick, steel, reinf. concr.
Wilmington, Calif.	24	17	6	*	x	x	x	Social Hall	x	*	Reinf. concr. & concr. masonry
	#2 to be added later						*to be added later				
HIGH											
Plains, Texas	6	5	6	-	x	x	-	—	x	*	Brick & steel, masonry partitions, concr. deck over OT joists
Canton, Mass.	6[f]	7	8	(Comb)		(Comb[e])		—	x	-	Brick & concr.
Middleton, Wis.	10	16	19	(Comb)		-	-	Band Room	-	x&alt[g]	Brick, steel, reinf. concr., tile back-up steel joists
Norfolk, Va.	10	16	4	x	x	x	x	—	x	*	Brick, steel, concr.
Oak Ridge, Tenn.	32	31	35	x[d]	x	x	x	(d)	x	*	Steel frame, brick, reinf. concr.
Macon, Ga.	32	6	11	(Comb)		x	x	6 bldgs. incl. shops, science labs., home economics labs.	x	*	Brick & steel, modular constr., radiant heat
Euclid, Ohio	65	15	16	x	x	x	x	Playroom, swimming pool, band and choral rooms	x	*	Brick, steel, concr., reinf. concr.
COLLEGE											
Moscow, Idaho Agrid. Sci.	3	28	35	x	*	x	*	Refrigeration rooms	x	*	Reinf. concr.
Manhattan, Kans. Fld. Hse. & Gym.	4	5	24	-	x	*	*	Field House	x	*	Steel rigid frame, stone facing, brick & Haydite backup
Columbus, Ohio Elect. Engr. Bldg.	—	—	—	—	—	—	—	95 rooms & laboratory	x	*	Brick & aluminum

(e) Canton, Mass. — Also used as study hall and home room.

(f) Canton, Mass. — Typing room, office practice room, picture area in laboratory and students activities room, also used as home rooms.

(g) Middleton, Wis. — Contr. incl. remodel interior and new heating for old school size 85x57 (3 stories).

(d) Oak Ridge, Tenn. — Band room, chorus room, 22 music practice cubicles, practice stage in cafeteria, medical clinic, 2 exercise rooms. Oversize auditorium, designed to double as municipal auditorium, has parking lot to serve that is not needed by school. Costs exclusive of aud. and lot: $1,450/stud., $11.37/sq.ft., $0.486/cu.ft., $2,173,000 total.

COLLEGES

The college buildings in the survey are an agricultural science building in Idaho, a field house and gymnasium in Kansas and an electrical engineering building in Ohio.

The agricultural science building is a 4½-story main building with a one-story wing, both of reinforced concrete construction. It serves 200 students and costs $3,499 per student, $12.59 per sq. ft., $0.91 per cu. ft. It provides three recitation rooms, 28 special instruction rooms, 35 administration and teacher rooms, an auditorium a library and refrigeration rooms. Foundations and superstructure takes 74.3 percent of the cost, electrical work, 5.9 per cent and plumbing and heating 19.8 per cent.

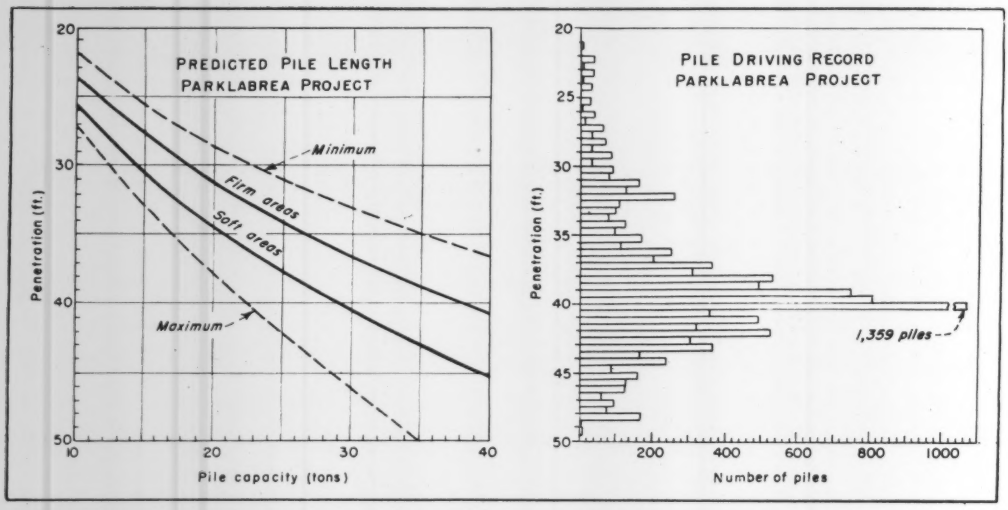
The electrical engineering building, not designated as to the number of students it is to serve, is a four-story brick and aluminum building containing 95 rooms and a laboratory. With elevators and utility tunnels, it costs $19.37 per sq.ft., $1.49 per cu.ft. Elevators cost $0.55 per sq. ft., $0.043 per cu.ft. or 3 percent of total cost. Utility tunnels cost $3.09 per sq. ft., $0.237 per cu.ft. or 16 per cent of total cost. Including its elevators, utility tunnels and aluminum, 59 percent of its cost goes into foundation and superstructure, 9 percent into electrical work, 3 percent into plumbing and 10 per cent into heating.

Gymnasium-field house

The field house and gymnasium is designed to serve 1,000 students at a construction cost of $1,627 per student. It provides locker facilities for 3,965 students and has a maximum capacity of 15,000 spectators. Its cost per spectator is $108. It costs $9.98 per sq.ft., $0.32 per cu.ft. and provides 4 recitation rooms, 5 special instruction rooms and 24 administration and teacher rooms in addition to the gym and field house. It is steel, rigid frame construction, stone facing, brick and Haydite backup. Contract was awarded November 1948 for $1,626,754.

The student capacity used in this study to compute per student investment in new schools is the normal capacity for which the school is designed. Most of the schools represented here could accommodate a higher maximum under the fire laws. This maximum-under-fire-laws unit cost would lower the cost per student below that shown in this report. It seemed better, however, to base the unit cost on normal operating capacity.

These schools range in size from 100 students to 2,640, and include temporary structures.



THE PREDICTED LENGTH for 35-ton capacity bearing piles (see chart on left) was confirmed by the driving results (right).

Results Check Pile Length Design

L. T. Evans
Foundation Engineer
Los Angeles, Calif.

FIFTY PERCENT of 10,680 piles on a Los Angeles project penetrated 38 to 43 feet—almost exactly as predicted in advance.

The cast-in-place concrete piles will support the eighteen 13-story buildings now under construction in the Metropolitan Life Insurance Company's Parklabrea project.

The penetration prediction was based on a 35-ton loading on each pile and the result of analysis of samples from 113 test holes.

The site is underlain predominantly by clay and clayey-sand beds. Due to a subsurface barrier, a pool of entrapped water rises to within 6 ft. of the ground surface. Although there are minor variations from building to building, the subsurface conditions are relatively uniform.

Using results of triaxial shear and consolidation tests made on undisturbed soil samples from varying depths of all 113 test holes, a pile capacity chart was developed (see accompanying charts). This chart was worked out by assuming consistent deformation of the adjoining soil. A hypothetical pile is divided into 20 equal lengths. If the shearing stress is balanced with the resulting settlement for each of the 20 sections so that each settles an equal amount, a solution results. Several such solutions (i.e., shear varied and settlement computed) are made and plotted in a diagram as above.

Setting up driving requirements

In establishing driving requirements, computed pile capacity, driving energy and resistance, pile test data on completed projects were referred to. From this information, a tentative correlation between driving requirements and the characteristics of the computed penetration-capacity curve was set up. To obtain the driving requirements for this new project, the penetration-capacity curve for the site is compared to a curve for a project in similar soil, and the driving resistance of the new project obtained by comparison. This resulted in the following requirements:

(1) The pile driver should deliver a blow of 19,500-ft.-lb.

(2) Unless unusual conditions are met, the driving should continue until resistance corresponds to the following:

Penetration (ft.)	Blows per foot
32 (minimum)	60
32 to 33	56
33 to 34	52
34 to 35	48
35 to 36	46
36 or more	44

These instructions resulted in piles driven as shown on the chart on the right above. Of a total of 10,860 piles driven, 1,359 penetrated 40 ft. This checks closely with the predicted length chart that indicated a 35-ton pile should penetrate between 39 and 43 ft. Some fifty percent of all the piles driven penetrated between 38 and 43 ft. This is believed to be an excellent correlation.

Some inaccuracy was caused by several hundred short piles. These short piles were caused mainly by thick layers of hard, cemented, clayey sand in two locations. This material was not found in any of the test holes. All of the short piles were confined to two buildings and were not scattered over the project.

Contractors on project

Starrett Brothers and Eken, Inc., are general contractors for the Metropolitan Life Insurance Co. Subcontractor for pile driving work was Raymond Concrete Pile Co. The author was foundation engineer on the project.

Rebound-Prevention in a Mat Foundation

MAKING new floor levels jibe with those of an existing building is a more exacting problem than it would appear to be at first glance. Especially if the original structure and its addition both have mat foundations on compressible soil.

This problem was solved for an eight-story, all-welded telephone building extension in Richmond, Va., by placing a 110x93-ft. concrete mat in sections, from the center of excavation outward. Digging was kept just ahead of concrete forming and pouring, so that the subgrade load remained nearly uniform throughout mat construction.

The effectiveness of this solution was checked constantly by a system of elevation reference points, in both the existing building and the addition.

Relative positions of the existing ten-story building and its addition are shown below. The existing building rests on a floating concrete mat. The choice of foundation for the addition depended upon the type of foundation already in place, because of the important construction objective: permanent alignment of floor levels between new and old structures. (Relative position of telephone equipment in old and new buildings has to be maintained.)

Subsoil would rebound

A stratum of compressible material below the foundations was the basis for cautious sectional-mat construction procedure. Analysis of the soil indicated that if excavation exposed the subgrade all at once, the compressible stratum would rebound as a result of load removal, and that settlement back to the original compressed state would continue long after the whole building was completed. The stages of excavation and construction are indicated in the accompanying drawing.

Foundation construction

Foundation work began with driving soldier piles at all building lines where buildings did not abut the site (see illustration). Underpinning pits were carried down below the walls of several existing buildings. The whole site was then excavated 17 ft. below the sidewalk, to El. 150. The soldier piles (penetration to El. 128.5) were lagged as digging proceeded, to retain the outside embankment, and a 12-in. H-section wale was welded onto the piles at El. 158.5, and also at lower levels as the excavation progressed downward.

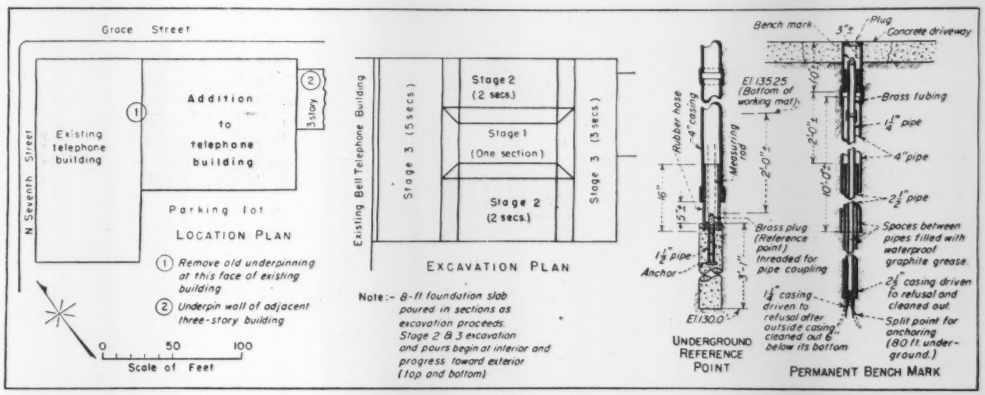
Sectional excavation then began, at the center, on a 1:1 slope down through a water-bearing pervious stratum into 4 ft. of clay, to subgrade El. 135.25. At top of clay the contractor benched back and dug a shallow intercepting trench on the bench, to lead water around the clay hole and into a sheeted sump. Water not caught by this interceptor drained directly from the clay hole into the sump, although the water remained at subgrade long enough to mud up the clay surface and render it unfit for foundation as well as setting reinforcing steel. This difficulty was mastered by placement of a 4-in. plain concrete working mat on the freshly exposed subgrade. Total thickness of foundation mat, including working mat, is 7 ft. 10 in.

Sectional mat construction proceeded outward under the same scheme. For excavation of the marginal sections, outside ground was retained by the lagged soldier piles, shored with 10-in. H-sections welded to the wales and butted against spuds in interior mat sections. Short shores lay horizontally from the mat to a lower wale ring, to keep soldiers from kicking inward.

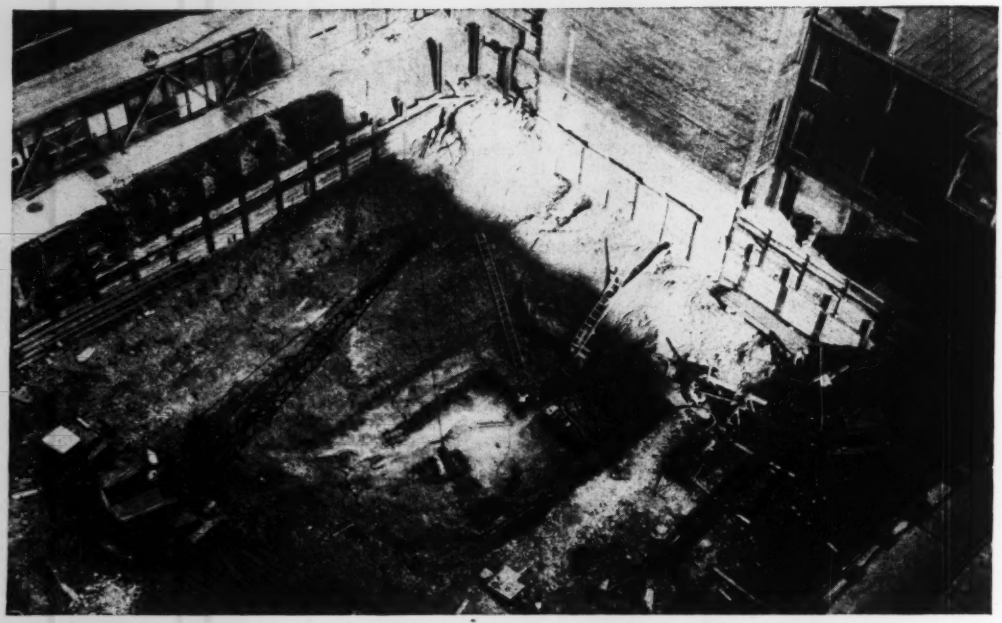
Checking elevations

The right-hand portion of the accompanying drawing shows two of the references by which rebound and settlement of the compressible stratum were checked. Four underground reference points were installed in the building site. The permanent bench mark was set outdoors, within the property lines. In addition, three reference points of another type were set into the foundation mat of the existing building.

All reference points were checked daily during excavation and mat construction, then at less frequent periods as frame and inclosure work proceeded.


Grace Street
N. Seventh Street
Existing telephone building
Addition to telephone building
3-story
Parking lot
LOCATION PLAN
1 Remove old underpinning at this face of existing building
2 Underpin wall of adjacent three-story building
0 50 100
Scale of Feet
Existing Bell Telephone Building
Stage 3 (5 secs.)
Stage 2 (2 secs.)
Stage 1 (One section)
Stage 2 (2 secs.)
Stage 3 (3 secs.)
EXCAVATION PLAN
Note:- 8-ft foundation slab poured in sections as excavation proceeds. Stage 2 & 3 excavation and pours begin at interior and progress toward exterior (top and bottom)
Bench mark
3"±
Plug
Concrete driveway
El 135.25 (Bottom of working mat)
Brass tubing
1¼" pipe
4" pipe
2½" pipe
Spaces between pipes filled with waterproof graphite grease.
2½" casing driven to refusal and cleaned out.
Split point for anchoring (80 ft. underground.)
Rubber hose
4" casing
Measuring tape
Brass plug (Reference point) threaded for pipe coupling
1½" pipe
Anchor
1½" casing driven to refusal after outside casing cleaned out & below its bottom
El 130.0±
UNDERGROUND REFERENCE POINT
PERMANENT BENCH MARK

THREE-STAGE FOUNDATION MAT construction, with careful checks on rebound and settlement were features of Richmond telephone building substructure work. Left-hand drawing shows location of work, center drawing shows the stages of excavation and mat-placement, and right-hand drawing shows two of the elevation check-points.



THE FIRST STAGE. Dragline finishing first-stage excavation, for the initial mat section. Note drainage to sump, from gravel layer on top of bench and from clay pocket at subgrade level. Waled and lagged soldier piles at left top were shored later.

Aside from slight variations attributed to irregularities in observation, the new foundation neither rebounded nor settled. There has been no movement of the old building to date.

Management

The Richmond building is being built by The Chesapeake & Potomac Telephone Co. of Virginia, C. E. Dennis, buildings engineer. General contractors are Doyle & Russell and Wise Contracting Co., Richmond, E. D. Steinhagen, superintendent. Spencer, White & Prentis, New York, did the foundation work, and the design was in charge of R. E. Robertson of Saxe, Williar and Robertson, Baltimore consultants. Merrill C. Lee of Richmond is the architect.

All-Welded Multistory Frame Erection

Close milling tolerances saved welding time, and general continuity of beam connections saved steel in construction of the Richmond telephone building. Furthermore, clip-and-seat welding connectors enabled quick frame erection and a clean-looking job. An even more important consideration favoring welding over riveting was the relative absence of noise and vibration, in view of the fact that telephone equipment continued to operate in the adjacent structure.

With a height of eight-stories (designed for later elevation to 14 to 16) this building has one of the tallest all-welded frames yet erected.

The milling tolerance available for this job was $\frac{1}{8}$ in. on the overall beam length, or $\frac{1}{16}$ in. per end. Therefore, beams were ordered $\frac{1}{16}$ in. per end short of clear space ($= \frac{1}{8}$ in. short o.a.), and the maximum gap to be filled with weld was $\frac{1}{8}$ in. affording a one-half saving in welding time and material over ordinary minimum tolerances of plus or minus $\frac{1}{4}$ in. (maximum gap $\frac{1}{2}$ in.) at each joint. This saving was offset partially by some increase in erection time due to tight fit of members.

Continuity of beams through columns was easy to obtain in most cases through full welding of beam flange and web to column flange or web, providing a continuous section throughout the columns. However, spandrel beams were placed with webs against the inside of the outer flange of the columns. This kept the spandrels at a constant distance from column centerlines, regardless of changes in column-flange thickness. As shown in the illustrations, this meant that the spandrel flange had to be notched. An additional piece of steel tied the notched spandrel flange to the corresponding flange on the other side, thus maintaining spandrel continuity through (and around) the column.

In all, continuous design and the absence of connection material will save 260 tons of structural steel on the ultimate construction. The existing telephone building, with a riveted frame and under similar live load requirements, weighs 187 pounds per sq. ft. of office space, compared with 157 pounds per sq. ft. for a corresponding panel in the addition. This comparison for an equipment floor is 132 pounds per sq. ft. in the old to 124 pounds per sq. ft. in the new.

One other feature of the design is notable: In the basement, on the old-building line, the exterior load is carried to an eccentric row of piers, to avoid a bad foundation condition and the tremendous underpinning of the previous building at the site. Through-welded plate girders are anchored at their inner ends on the second row of

piers, then run continuously across the first, or eccentric, row of piers and cantilever 7 ft. to take the exterior-column loads. Instead of designing the flanges with cover plates of varying lengths, the consulting engineers specified plates of varying thicknesses, to be butt-welded at the locations where flange thickness was to change. In this way the designers obtained flange homogeneity superior to that of welded cover plates. Web plates also were butt-welded.

Steel erection

With the aid of the clips and seats, steel erection proceeded at a 2½-day-per floor rate. The derrick could be jumped in two days, including necessary under-derrick welding. Two-story columns were set and bolted temporarily with the aid of welded-on ears of light gage steel. Then the girders were set in place, their clips fitting into seats on columns in the same way that a man's hand fits down into a window-pull. Beams were joined to girders or columns in the same manner.

Rigid joints were obtained with two or more clip-seat combinations per connection, combined with a tight clip fit.

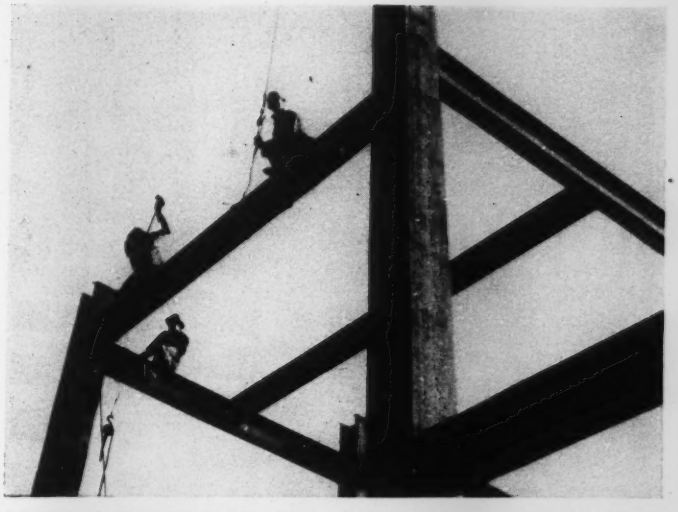
This tight fit, plus close milling tolerances occasionally called for some strong-arm work. Astride the beam, a man mauled the beam while another man took up tension on a hold-down cable. Erection of the eight stories took six weeks. Welding proceeded along with erection and was completed five weeks later.

Six to eight welders worked singly. Their machines were grouped on the ground alongside the site, with cables rising in sections to be tied to the frame near the work.

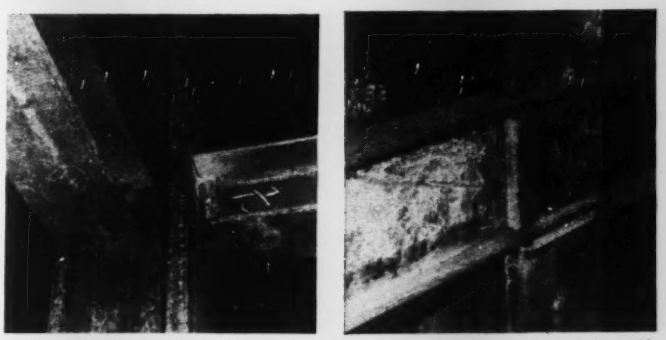
With one exception, the remainder of construction is conventional: stone-concrete fireproofing, brick and stone exterior, ordinary floor finishes. The roof, however, has a lightweight concrete fill, on top of a structural slab laid flat. This fill gives proper pitch for drainage, but it can be removed and the slab given a floor topping to become the ninth floor when floors are added.

When the additional stories are built, two elevators can be put into space framed for a shaft. For the time being, however, modernized elevators in the old building will serve the addition.

Ownership and design and construction agencies have been listed above. The steel-erection clip is patented by Van Rensselaer Saxe, of Saxe, Williar & Robertson. Fabrication and erection of steel work was by the American Bridge Co., Pittsburgh, Pa.

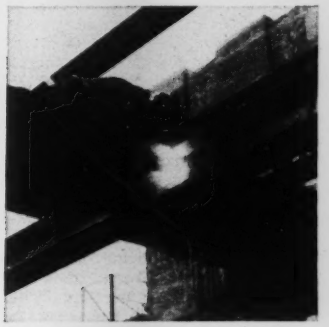


ERECTION FOR WELDING. Clips on girder-ends wedge down into erection seats on column (see seats on column). Aided by a hold-down line, worker pounds the beam home to overcome a tight fit.



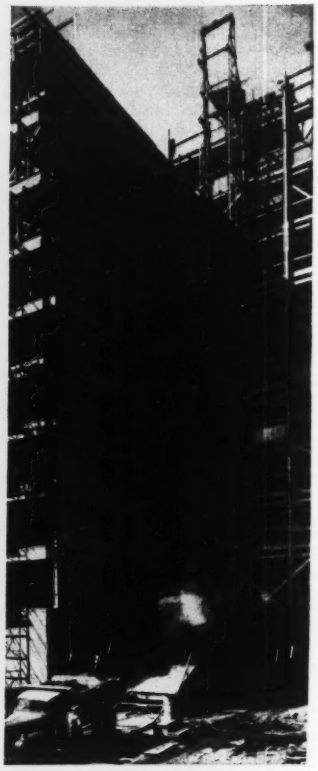
CONTINUOUS SPANDREL BEAMS. (left) Spandrel beam flanges notched for welding to column flanges (right). Plates welded to beam flanges preserve continuity.

ONLY BOLTS ON THE JOB will tie these columns together until welders complete the butt splice.



ONE MAN CONNECTS BEAM to girder, making shear weld with a series of downhand passes.

Cranes with long booms were teamed with . . .



A high mobile tower to . . .

Speed Concreting on S. F. Apartments

CONSTRUCTION of four 10-story, reinforced-concrete apartment buildings in San Francisco has been rushed to completion in record time by use of equipment that worked from the ground to raise forms and hoist concrete.

A mobile concrete mixing and hoisting unit with a record 116-ft. tower and two cranes with 100- and 115-ft. booms enabled MacDonald, Young & Nelson, San Francisco contractors, to complete the concrete work from footings to roof in less than six months.

These buildings are part of an apartment development being made by Stoneson Bros. in a 20-acre site in the southwestern part of the city. The initial development includes ten 3-story buildings as well as the four 10-story buildings, for a total of 683 apartment units.

These items made the fast work possible:

The forms were designed to be reused by raising them from floor to floor. The architectural design was clean-cut all the way up the building with no interfering changes that would require altered forms. The 10-story height was such that work could be done from the ground.

The simple construction system developed was of course dependent on the particular buildings involved. Had the buildings been higher, hoists would have been necessary for each building; scaffolding would have been necessary to install the form panels. If the buildings were to have been brick faced, or if a structural steel frame had been involved an entirely different—and probably more conventional—construction sequence undoubtedly would have been adopted.

The use of conventional equipment for unconventional—but reasonable—tasks was aided because there were four buildings. Had there been fewer, the equipment may have been idle while forms were refinished or the like. With more buildings, more equipment would have been necessary. As it was, the two cranes and the mobile mixing and hoisting apparatus were kept busy but not overloaded.

Cranes hoist forms

Forms were hoisted from floor to floor by one of the long-boomed cranes. Bolt-holes were used alternately for the top and bottom of succeeding pours.

Other necessary materials were also

hoisted from ground level by crane. Interior forms and floor-slab forms were stripped, bundled and shoved to a window where they were hoisted by one of the cranes. The simple architectural lines permitted the same forms to be used from bottom to top.

The form facing was plywood, coated with a lacquer-type protectant. After each two or three uses, the form surface was sanded down and relacquered. By the time the forms got up to the top of the building, their surface was harder and smoother than when the job started.

Concrete was dry-batched in a semi-automatic batch plant located in the project area. Dump trucks carrying two batches each hauled the dry mix to the mobile mixing and hoisting equipment. Concrete was mixed 2 cu. yd. at a time and hoisted for placing. One-half of the floor and walls for a one-story lift were placed at one time.

After a lift had been placed, the equipment was moved to one of the other buildings where another pour was ready. Time lapse between completion of one pour and beginning of another was less than one hour.

For the lower floors, and before the hoist tower got more than 60 ft. high, the tower was moved merely by driving the portable mixing equipment to the new site. After that, the top section was removed in pieces and trucked separately to the new location.

It was necessary to drive the equipment slowly, since slight potholes in the ground would cause the tower to sway considerably. In fact, for some of the moves the equipment was preceded by a small motor grader. On the early moves, one of the long-boomed cranes was hooked onto the tower to provide additional stability. However, it was found that the cranes were affected even more by the ground surface, and this plan was abandoned.

MOBILE MIXING AND HOISTING unit moves from one building to another with two sections of the 116-ft. tower detached and loaded on small dump trucks. Joining the caravan is the heavier of the two job cranes used here to assemble and disassemble the hoisting tower. Time between pours was less than an hour.

FOUR 10-STORY BUILDINGS are part of a development that also includes smaller buildings. Concrete is dry-batched at the plant on the left and hauled to the buildings for mixing and placing. Forms were shifted by cranes on the ground.

Structural designs simple

The structural design of these apartment buildings is as simple as the architectural design. Exterior walls are 9 in. thick for the first three floors and 8 in. from there up. Solid interior bearing walls are 8 in. thick. These solid interior walls act as shear walls to provide lateral resistance for earthquake forces.

The buildings are founded on simple spread footings. The natural clayey sand provides ample support for this type of structure.

All but the first floor will include apartments and the floor plan of each will be identical. The first floor will include car ports, laundry, storage rooms, entryway, etc.

Total cost of this initial apartment development (including streets, etc.) is about $6,000,000 and it is financed with the assistance of title six FHA financing. Additional units are contemplated in the near future. Besides the apartment development a $15,000,000 shopping center is planned.

Architect on the work was Angus McSweeney. The owners are represented by Ellis Stoneson and Henry Stoneson of Stoneson Bros. General contractor was MacDonald, Young & Nelson, Inc., San Francisco, with Dallas "Pete" Young in charge of field operations for the firm. Lee Arnold was general superintendent.

DEVELOPMENTS ABROAD

CONVOY IN THE MOUNTAINS is standard practice for the Construction Service Corp., of Manila, P. I. Here, the convoy consists of a stripped-down dump truck with a winch for emergency use, a double-duty vehicle pulling a 30-ton transformer on a war-surplus flat bed, and a rear guard truck with manpower and equipment for road repairs.

Former prisoners of Japanese succeed in Philippine industry

Construction Service Corporation, starting with nothing but an idea and vision, builds a $500,000 business in four years of hard work

There's a construction industry frontier to conquer in the Philippines.

It isn't the place to make a quick fortune the easy way, then pull stakes and leave. The day of the American imperialist is over.

But there is opportunity for those who can take risks, improvise and work with the Filipinos. It's evidenced by the remarkable success story of the Construction Service Corporation.

Only five years ago, the three principals in the firm were civilian internees—prisoners of the Japs. During that very dark period, they planned a venture. At first, it was just a dream of helping rebuild the battered Philippine capital and its economy.

Liberated in February, 1945, the three went about building a stake to start them off. Ten months later, they each put $1,000 into a construction service business valued now at half a million dollars. And they're just beginning to roll.

It wasn't easy. Their first loan—$12,500 for a couple of bulldozers and 15 army-surplus dump trucks—cost them interest at 50 percent. The partners—now five—had to choose wisely in what they bought, make the most of what they had and "scrounge around" for what they needed.

First call was for demolition work. Rubble had to be cleared and salvagable structures repaired. The dozers and trucks put them immediately into business here.

Most sand and gravel was, at the time, being washed in wire baskets in the rivers. A screening plant could make money—if one were available. They found a rock-crusher in a dump, cleaned it up and powered it with a jeep engine. From demolition jobs came structural steel to support the bins and trommel—the latter a revolving drum made from a tobacco dryer. Bins were steel tanks salvaged from a brewery. Power plant was a marine engine; platforms were made from landing mats; but the finished plant turned out 35 to 40 tons of sand and gravel per hour.

Success from the start could be attributed to that factor which in wartime had been named "Yank ingenuity".

When lumber was in demand, back into the hill country of Luzon they went with trailers pulled by converted dump-truck tractors. Rain-washed back country roads required that a truck follow along with the crew and timbers for building emergency bridges as they went.

An estimated $5,000 a year was lost in this hill country to bandits who still sweep down from the hills to pillage trucks and strip them of tires and equipment.

Labor problems aplenty plagued the outfit. Drivers and mechanics caught on quickly—both to their jobs and the wages they could ask. They made four times the prevailing prewar rate until last year, and all went smoothly. Then union agitation cropped up and these demands were made:

(1) A 50 percent to 100 percent wage boost.
(2) 50 percent more for overtime.
(3) 100 percent more for holidays.
(4) For drivers on trips, overtime from departure until return—plus meal allowances.
(5) Closed shop.
(6) Sick leave and medical benefits.

Average take home pay is now $7 a day. It was 75 cents a day before the war.

CSC has taken some bold gambles—and won. But it sees no room in the Philippines for investors unwilling to get in and work, closely supervising, but not trying to Americanize, the Filipino.

At present, Allen Hackett, vice-president of CSC in charge of plant and traffic maintenance, is in the U. S., scouting around for items that can be manufactured in the Philippines as CSC's next venture.

In addition to Hackett, other CSC officials are George D. Sternberg, president; Walter K. Barnes, vice-president in charge of field operations; Enrique Coguiat, secretary-treasurer; and D. T. Sternberg, promotion manager. All save Barnes worked in Manila before the war. Barnes is an ex-U. S. Army Ordnance officer.

River Diversion

Mexico—Probably the greatest single tourist attraction in the Mexico City area was endangered by the recent drought in Mexico, plus the historical tendency for the lakes of the Vallley of Mexico to dry up.

The lake of Xochimilco, whose flower-lined canals and inlets are world famous, lost so much of its water that the principal canals were unable to carry the tourist gondolas. It was feared that Xochimilco was going to suffer the fate of Texcoco—the great lake upon whose islands Mexico City was originally built. Texcoco is now a great dry desert on the outskirts.

However, the Direccion de Aguas y Saneamiento (Water and Sanitation Department) of the Federal District of Mexico put its engineers to work on the problem, and four rivers were diverted into Xochimilco.

Now the water level has again risen in the historic tourist lake, and the thousands of boat and restaurant owners are pleased.

Prefabricated Houses

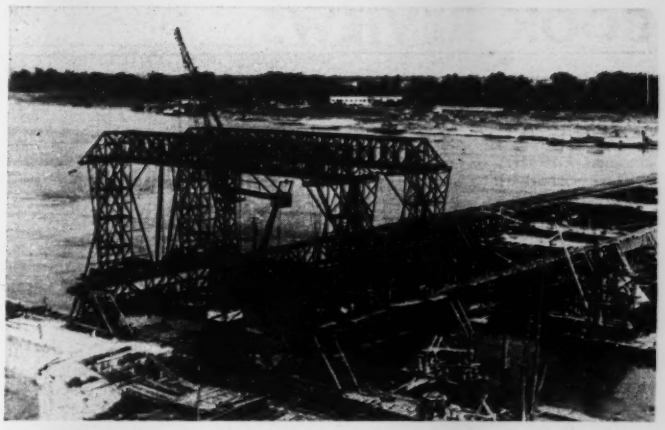
Sweden—The export value of Swedish prefabricated frame houses has so far amounted to $44,800,000. Prefabricated houses have been shipped from Sweden to many oil centers on the Persian Gulf as well as to the State of Israel. Argentina has shown great interest, and orders are awaiting delivery, pending a settlement of the payment problem. In certain places, the houses are considered a bit too large and elaborately equipped. However, new types are now being designed which are particularly suited to non-European countries.

Transport

France—The government of France has approved French participation in the construction of an 8-mile road tunnel under Mont Blanc—which is the highest mountain in Europe—to link France and Italy. The project will join Courmayeux, Italy, with Chamouix, France.

Great Britain—The largest railway engineering project to be undertaken in Great Britain in this century has been started. It is a new tunnel at Woodhead between Manchester and Sheffield. Three miles in length, only two other tunnels in England are longer, the Severn and the Tottey. Completion is set for 1952.

The first order under the Special Roads Act just passed, dealing with a section of the proposed motorway linking South Wales and Bristol with Birmingham, will be made shortly. The British Road Federation reports that this section is 27 miles in length and will run from north of Twyning, Gloucestershire, to north of Lydiate Ash, near Bromsgrove, Worcestershire. The motorway, which will have two lanes, will be 93 feet in overall width.



DESTROYED BY THE GERMANS in 1944, rebuilt by the Poles in 1949—that's the story of this Vistula River bridge near Warsaw. The rebuilt structure will have four railroad tracks plus a highway. The earlier bridge had only two tracks. (Eastern Publishers Service Photo)

South Africa—Following a recent visit by Bernal Massé, chief executive of the International Road Federation, South African industrialists are proposing to establish their own counterpart of the British Road Federation. Discussing the valuable work to be done by such an organization, Jack Gibson, secretary to the Minister of Transport, reminded a representative meeting in the Johannesburg Chamber of Commerce that the volume of motor traffic in the Union was rapidly increasing. The government is aware of the urgent need for more and better roads.

The chairman, Eric Blackwell, director of the Society of Automotive Manufacturers and Importers of South Africa, said that the main object of the federation would be to effect an improvement in traveling conditions. Revealing that Johannesburg's traffic moves more slowly today than it did thirty years ago when horsedrawn, the chairman said that in London last year, he came across evidence of the British Road Federation's activities wherever he went. He felt that there was urgent need of a similar organization in the Union to protect, among other things, the interests of road users.

Harbors

Scotland—The Clyde Navigation Trust, Glasgow, Scotland, has prepared plans for additional space for ships by construction of a new basin to be built at King George Fifth Dock, Shieldhall, at a cost of $30,000,000.

India—The central government will soon start work on its $15,000,000 expansion of Madras harbor. The first part of the plan calls for construction of a "wet dock" and a railroad marshalling yard on a 120-acre site. When finally completed, the expanded harbor will be able to accommodate 19 ships at a time instead of nine as at present and will handle nearly 3,000,000 tons of cargo at a time, 1,000,000 more than at present.

Airport

Puerto Rico—Plans for the construction of the first part of the Isla Verde International Airport were signed at a ceremony held recently at the office of the Puerto Rico Transportation Authority.

Bids will be advertised in trade papers and newspapers in Puerto Rico and continental United States.

The first part of this project consists of the drainage, leveling and cleaning of land at an estimated cost of $2,100,000. Puerto Rico will invest one-half the cost of the project, and the balance to be paid by the United States.

Plans for the second phase of construction of this project are now being prepared. They will include grading and paving of the runways, installation of illumination, water and telephone. The final estimated cost of the Isla Verde International Airport is $12,000,000, and it will be completed in all its phases in 1952, according to plans.

BOOK REVIEWS

Papers on Large Dams

TRANSACTIONS OF THE THIRD INTERNATIONAL CONGRESS ON LARGE DAMS—Three volumes. International Commission on Large Dams, 3 Rue de Messine, Paris VIII, France. Obtainable from the U. S. Committee on Large Dams, c/o Gail A. Hathaway, 4316 Van Buren St., University Park, Hyattsville, Md. $40 for the set of three volumes.

Subjects considered at the Third International Congress on Large Dams that was held in Stockholm last summer were the following: Measurement of uplift under dams and stresses arising from such uplift; research methods and instruments for measuring stresses in earth and concrete dams; precautions to prevent the formation of piping in earth dams; and experience in the use of special cements in large dams.

Engineers from this country who attended the conference stated that many of the papers were unusually informative and some brought out new concepts. Discussion was active.

The 66 reports and 8 communications submitted to the conference, together with summaries of the discussions, have been printed and now are available. About half the papers are in English. The remainder are in French but have summaries in English.

Distribution of the transactions in this country is being handled by the U. S. Committee on Large Dams, of which Gail A. Hathaway is chairman. The number of volumes is limited and orders will be filled on a first-come first-served basis. Check or money orders should be made out to the committee and sent to Mr. Hathaway at the address given above. The price of $40 for the set includes shipping charges.

Economic Studies

AN INTRODUCTION TO ENGINEERING ECONOMICS—By C. R. Young. 160 pp. The University of Toronto Press, Toronto, Ont., $3.

Although Dean Young wrote this little book primarily for engineering students, its clear and concise restatement of such fundamentals of engineering economics as costs, present value and depreciation will be found of value to practicing engineers. Engineers who have occasion to make comparative studies of two or more possible solutions for a specific engineering problem should profit by Dean Young's discussions of "Comparative Economy" and what he calls "Critical Costs".

Railroad Bridges

MODERN RAILROAD STRUCTURES — By Charles P. Disney and Robert F. Legget, 213 pp. McGraw-Hill Book Company, New York, Toronto and London. $5.

The "structures" described in this book are chiefly bridges, bridge piers and turntable walls. Precast concrete bridges, on which Mr. Disney did so much pioneering work when he was bridge engineer of the Central Region, Canadian National Railways, are treated in detail.

Both railway engineers and highway bridge engineers will find much useful information in the sections on rigid-frame concrete bridges and the one on bridge piers built chiefly of H-section steel columns in bridge replacement work.

The book opens with a concise statement of the application of soil mechanics to railroad work and it contains a chapter on the stabilization of roadway and embankments by grouting, a relatively new practice not heretofore covered in engineering literature except in the contemporary technical journals.

The latter part of the book is given over to detailed descriptions of the "intrusion-prepakt" method for repair of bridge piers and other masonry structures, a method to which Mr. Disney has been devoting his attention since leaving railway work.

Earthmover

MOVING HEAVEN AND EARTH—The story of R. G. LeTourneau. By Dondla F. Ackland. 200 pp. The Iversen-Ford Associates, New York. $2.

Here is the biography of a man whose name is now well known the world over wherever there is earth to be moved, R. G. LeTourneau, who is characterized in the subtitle as "inventor, designer, manufacturer, preacher." It is a fascinating story, and one that would be viewed with considerable scepticism if a writer of fiction had combined so many diverse abilities in one individual. Leaving school at 14 Mr. Le Tourneau was progressively an apprentice in an iron foundry, a master moulder, a welder, an electrical machinist in the Navy in World War I, a garage operator and a land-leveling contractor. It was the latter that started him on his way to be a manufacturer of bigger and bigger earth-moving equipment, to which was added during World War II a variety of special equipment for military service and the production of 155-mm. shells.

And since 1936, when he made an impromptu declaration of his Christian faith at a meeting of the Peoria Association of Commerce, many of Mr. LeTourneau's weekends have been spent speaking in churches in all parts of the country, usually flying to and from his destination in his plane the "Lodestar".

Miscellaneous Notes on Booklets and Reprints

A NEW EDITION of the Contractors' Equipment Ownership Expense Manual has been issued by the Associated General Contractors of America. This is the first major revision of the manual since 1938. It contains 1,400 items of equipment not included in earlier editions with tentative charge-off percentages. No "sample costs" for the various items of equipment are given in this new manual, but space is provided after each item for owners to fill in the actual cost. Single copies can be obtained for $1 from the AGC office, Munsey Building, Washington 4, D. C. Checks should be payable to "The Construction Foundation." Special prices are quoted on larger quantities.

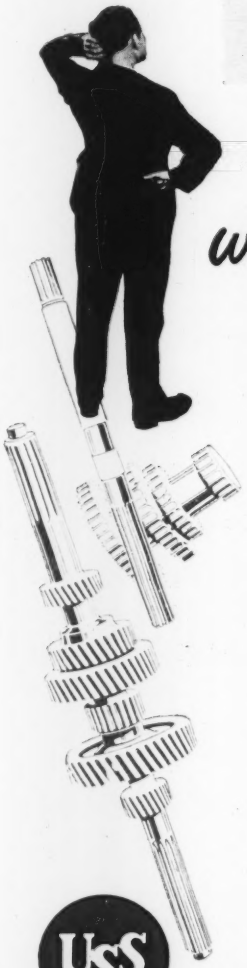
HIGHWAY RESEARCH PROJECTS under way in various parts of the country are briefly described in a new publication of the Highway Research Board entitled "Highway Research Review." Present plans are to publish this pamphlet quarterly and to include articles and editorial comment on current research work, also listings of needed highway research and of new research projects. Copies can be obtained from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C.

STEEL BUILDS THE WEST, a sound film depicting the part of steel in the industry of the seven West Coast states. Available without cost in the West. Publications Department, Bethlehem Pacific Coast Steel Corp., 20th & Illinois Sts., San Francisco, Calif.

If you are using carburizing steels . . .

Here's where it pays to use U·S·S SuperKore Steels

In many applications like these	in which these steels are generally used	you will save money by using
Aircraft gears, shafts, pinions, etc.	E-3310, E-9310 or equivalent AMS Specification	U·S·S SuperKore A (AMS-6266)
Heavy duty truck and tractor gears, shafts, pinions, etc.	3316, 9316	U·S·S SuperKore AA
Heavily loaded gears, shafts, pinions etc. and carburized parts used in oil well drilling industry.	4815, 4820	U·S·S SuperKore B
Gears, shafts, pinions, etc.	4317, 4320	U·S·S SuperKore C



Cut your Costs with U·S·S SUPERKORE *steels*

• There's been a lot of talk lately about "dollar metallurgy." It's just a fancy name for metallurgical research that aims to give the steel user more for his money in the way of reduced costs and better product performance. If you want to know how it pans out in reducing the cost of gears, shafts, and pinions *subjected to heavy loads*, put U·S·S SUPERKORE Steels to work.

This is what you'll discover: You'll find that when SUPERKORE Steels are applied, where they should be, you can obtain the same high-core-strength-plus-toughness formerly obtainable only with more highly alloyed carburizing steels. But your costs for steel and your manufacturing costs will be less.

That is because our metallurgists had *lower-users'-costs* in mind when they set out to develop U·S·S SUPERKORE. Because SUPERKORE Steels are lower in total alloy content they cost less to start with. And because the alloying elements are used more effectively and the steels are further improved by special manufacturing practices, SUPERKORE Steels have improved carburizing characteristics. They have better machinability, and they are easier to anneal. Therefore they can be turned into superior finished parts at lower cost.

U·S·S SUPERKORE Steels are now available in four different grades —each designed for a *specific* type of heavy duty service. Find out where you can apply them to reduce your costs, to simplify inventory and specification details. To guide you in their most economical and practical application, the men who developed SUPERKORE will be glad to assist you. The "Superkore Booklet" will give you further interesting information. You can obtain a copy by writing to Carnegie-Illinois Steel Corporation, Room 2070 Carnegie Building, Pittsburgh 30, Pennsylvania.

CARNEGIE-ILLINOIS STEEL CORPORATION, PITTSBURGH & CHICAGO
COLUMBIA STEEL COMPANY, SAN FRANCISCO
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
UNITED STATES STEEL SUPPLY COMPANY, WAREHOUSE DISTRIBUTORS, COAST-TO COAST
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Carilloy Steels

ELECTRIC FURNACE OR OPEN HEARTH
COMPLETE PRODUCTION FACILITIES IN CHICAGO AND PITTSBURGH

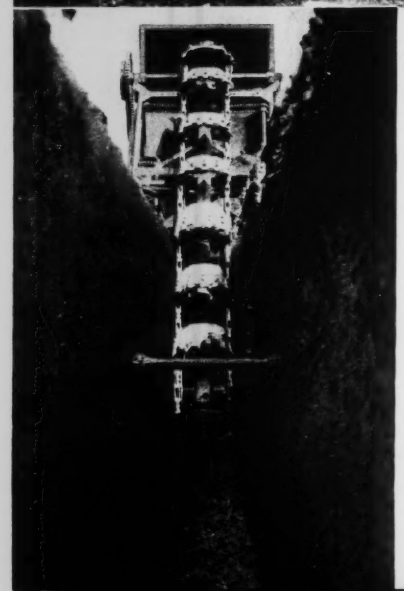
9-319

USS

UNITED STATES STEEL

How PARSONS TRENCHLINER* ELIMINATES COSTLY HANDWORK

*T/M REG. U. S. PAT. OFF.



Trench Next to Walls Without Hand Work

Parsons Trenchliner digs at top efficiency within just a few inches of walls, fences, telephone poles. Boom shifts across entire width of Trenchliner — easily and smoothly, because it rides on large diameter rollers. Shifting boom permits Trenchliner to sidestep obstructions that stop other trenchers, saves money on sections of trench that formerly were 100% costly hand work.

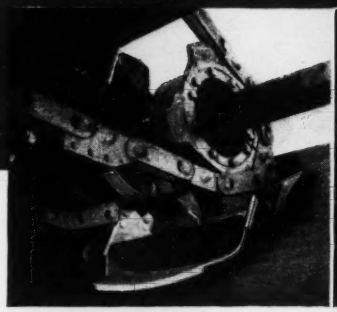
Pipe Across Trench Is No Problem

Trenchliner digs up to pipe, then over, then slides boom under pipe. Hand work is virtually eliminated.

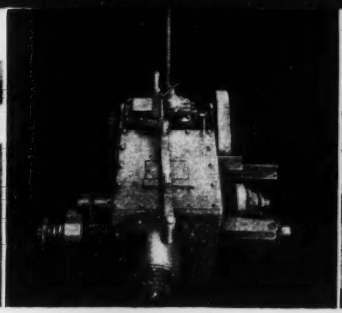
Clean Bottom, Straight Walls

Trenchliner ditches are uniform, the width you need at the depth you want, straight-walled, round-bottomed, ready for pipe with minimum hand work.

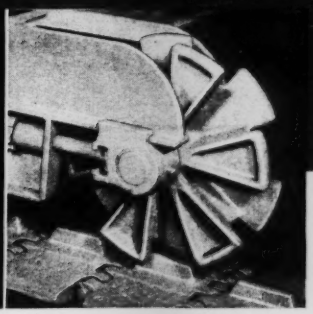
PARSONS COMPANY
Newton, Iowa • Koehring Subsidiary



SELF-CLEANING BUCKETS—No hand work. Buckets are scraped out automatically by spring-cushioned cleaner. Each bucket gets a big bite . . . all pay dirt . . . because bucket is always clean.



OIL CHANGED ONLY TWICE A YEAR — Even under continuous operation. All gears activating operations of Parsons Trenchliners enclosed in one oil-tight case, in continuous oil bath.



PROTECTED AGAINST ABRASIVE WEAR — Entire crawler assembly is self-cleaning. Main machinery is well shielded from bucket line spill . . . stays clean . . . moving parts throughout are protected.

Discharge Concrete Batches Above Ground Level

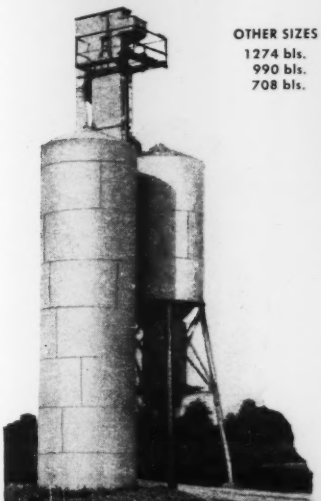
Tower Loader for Kwik-Mix 11-S Dandie

Now you can discharge concrete batches into trucks and overhead hoppers from ground level with Kwik-Mix 11-S Dandie. New tower loading attachment has 9'-2" discharge height. Bucket handles full batch . . . is powered by mixer engine . . . discharges automatically at top of tower. Loader is also available for use with big Kwik-Mix 16-S Dandie.

Top Capacity plus Full Portability

Johnson Twin-Silo Bulk Cement Plant

Johnson Twin Silo bulk cement plant, stores as much as 1550 barrels of cement, yet is fully portable. Welded construction speeds erection.



OTHER SIZES
1274 bls.
990 bls.
708 bls.

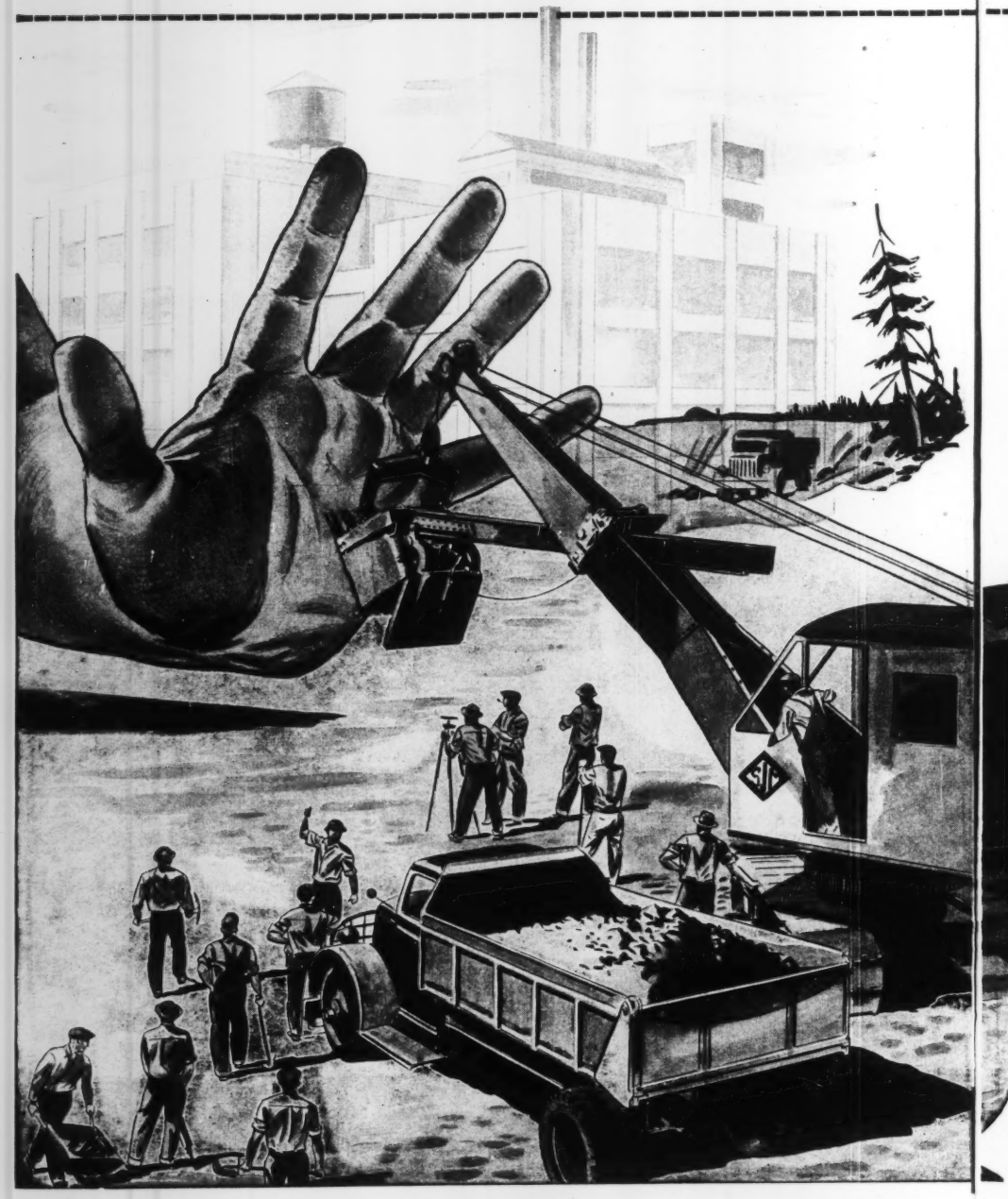
Enclosed Gears Run in Continuous Oil Bath

Koehring 304 Heavy-Duty Pullshovel

Heavy-Duty leader in the ¾ yard class. An excellent tool for the trenching jobs where wide sloped trenches are required or where nature of material to be excavated calls for shovel digging. Maintenance time cut in half, because all gears are enclosed, run in continuous oil bath. Anti-friction bearings require lubrication only twice a year.

YOU CAN BE **SURE**.. IF IT'S

Westinghouse



STOP!

...have you planned your power distribution system?

Building a new production area? Everything laid out to do the job you've planned? Sure it is.

BUT . . . have you planned for the *best system* to power your new production lines? Their ability to produce depends directly on this power system.

Will your distribution system save you money *over a period of years?* Have you thought about *future* loads? Is it flexible enough to handle shifting production lines? Will it provide voltage regulation you need?

Whatever the problem—Westinghouse can help you find the "one best" system for *your* plant.

Our engineers have worked with *all types* of industries for a good many years. They have found new and better answers to *all* phases of power distribution. Westinghouse offers this co-operation to all Industry in getting power to do the best job at the lowest possible cost. J-94788

Here's REAL help for your "System Planning"

1. A new 34-page booklet: "Industrial Plant Distribution Systems", B-4045. Fact-filled pages and colorful diagrams present the basic systems most widely used in Industry today. Find how to choose the *best system* for *your* plant.

2. System Selector: A wealth of information condensed to a pocket-size selector! In a matter of minutes you can make preliminary decisions on the system that answers *your* requirements.

3. Color Movie: Get all the facts visually! This 16-mm, full-color movie is a 20-minute dramatization that will point the way to new economies in plant power distribution. Ask one of our representatives for a free showing of "The Right Power Distribution System". No obligation, of course.

If you're expanding or building a new production area . . . get this invaluable information NOW!

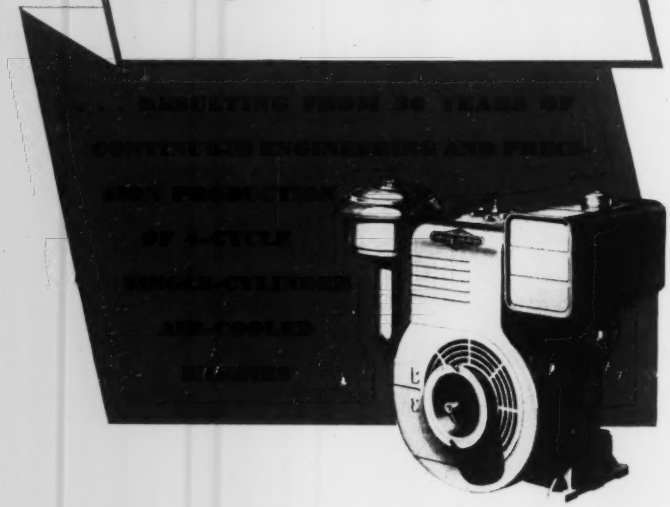
Call your nearest Westinghouse office, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Penna.

Westinghouse

SYSTEM PLANNING SERVICE

WESTINGHOUSE

As always –
. . . Leaders in advanced features and design developments



The experience gained in building more than 4 million air-cooled 4-cycle gasoline engines—during 30 years of uninterrupted production—plus the knowledge acquired in putting air-cooled power to work on all types of equipment, machinery and appliances—for civilian and military uses—in industry, construction, by railroads and on farms—all this broad technical background has kept Briggs & Stratton always *first* in modern design and advanced features.

The best in modern development—best methods of precision construction—the best procedures in laboratory and field testing—most complete manufacturing facilities—these are all present and basic in Briggs & Stratton engine building. For all that is best in design, features and performance in air-cooled power, manufacturers, dealers, and users look to Briggs & Stratton.

BRIGGS & STRATTON CORP., Milwaukee 1, Wis., U.S.A.

World Wide FACTORY SUPERVISED SERVICE

4 CYCLE BRIGGS & STRATTON GASOLINE ENGINES

Men and Jobs

William A. Haley, III, has joined the staff of the American Concrete Pipe Association as assistant to the managing director, Howard F. Peckworth. Mr. Haley's studies at Hampden-Sydney College and VMI were interrupted by war service. He saw three years of active duty as a combat first lieutenant of artillery attached to the 665 Field Artillery Battalion of the Third Army in Europe. Returning after the war he received the degree B.S. in civil engineering in February, 1947. He will be at the headquarters of the American Concrete Pipe Association, 228 North La Salle St., Chicago 1, Ill.

Col. Benjamin C. Fowlkes, Jr., is now district engineer of the Vicksburg, Miss., district, Corps of Engineers. He was transferred from the Industrial College in Washington, where he recently completed a year of advanced study. He is a graduate civil engineer as well as a graduate of the United States Military Academy. He received his commission as second lieutenant, Corps of Engineers, in 1925. Colonel Fowlkes has had a great deal of construction experience.

On Sept. 15, **Col. Francis H. Falkner,** head, U. S. Army Engineers in Pittsburgh district will be transferred to a similar position in Honolulu. Colonel Faulkner served in Pittsburgh since Oct. 31, 1947. He is a West Point graduate and an expert on flood control.

William W. Behrens, former admiral, who for the last two years has headed the Pennsylvania state bureau of engineering and construction, has left that work to become chief engineer for the State Public School Building Authority.

Jonathan E. Teal, for many years transportation engineer for the Chesapeake & Ohio Railway, has opened an office as consulting engineer at 3813 Brook Road, Richmond 22, Va.

J. F. Stigers, director of design for the Kentucky state highway department, has been appointed assistant highway engineer, and is succeeded by **A. O. Neiser.**

Peter M. Reif, a war veteran and an engineering graduate of Cornell University, has joined the staff of Horizons, Inc., at 2891 E. 79th St., Cleveland, Ohio.

(*Continued on page 40*)

STANDARD ENGINEER'S REPORT

RPM

TEST DATA

LUBRICANT RPM-Multi-Service Gear Lubr.

UNIT "Semi" Truck and Trailer

PART Final Drive-Timken U-200 Axle

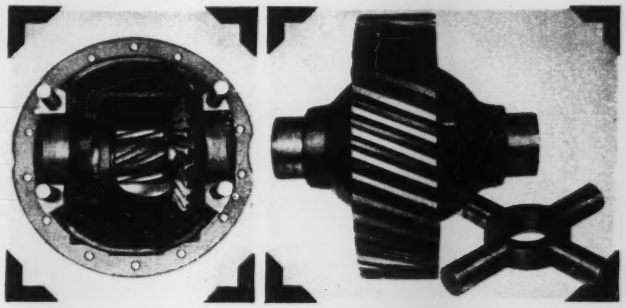
CONDITIONS Long-distance freight haul-road elev. 0 to 7200 ft.-weather-20° to 125° F.

LOCATION Los Angeles-Albuquerque, N.M.

FIRM Illinois-California Express Co, L.A.

Hypoid gears in good condition after 192,000 Miles!

RPM Multi-Service Gear Lubricant was used exclusively in the final drive from which this hypoid pinion was pulled—319,270 miles since it was new and 192,000 miles since last overhaul. As photo above indicates, none of the gears was worn enough to warrant replacement.

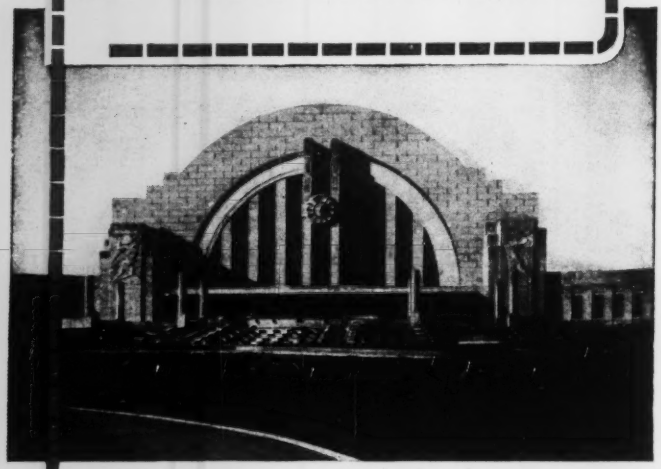


These pictures show other gears from the final drive when they were removed for the 192,000 mile inspection. Note their excellent condition, despite service on the highway in extremes of load and weather conditions. All were put back in service. The rear end was only taken down because there was time to do so when the unit was in the shop for engine service. It was in service 13,000-14,000 miles a month. Drain and refill period was about 35,000 miles. The average gross load for the transport unit was 68,000 pounds. RPM Multi-Service Gear Lubricant provides longer gear life under heavy-duty service. It is highly resistant to oxidation. It is rust-inhibited and also compounded to stop foaming—prevent operational problems like loss of lubricant through leakage, damage to lubricant seals and saturation of brake linings by oil.

REMARKS: This final drive was in a unit used over a desert and mountain route in all kinds of weather—rain, heat, ice and snow. Atmospheric temperatures ranged from sub-zero to 125° F. The round-trip haul was 1650 miles and truck speed averaged 35 miles per hour. The route passes from below sea level at Indio, California to 7200 feet at Prescott, Arizona, and several intervening grades rise 2000 feet in less than 10 miles. RPM Multi-Service Gear Lubricant is specially compounded for satisfactory service under all operating conditions. It contains a chemical additive which reacts with metal to put a tough lubricating film on gears—protect against friction-welding and scoring. It adheres to vital gear tooth wear surfaces and withstands the sliding action and extreme pressure of hypoids under overload, shock load and low speed-high load operation.

STANDARD OIL COMPANY OF CALIFORNIA • San Francisco
THE CALIFORNIA OIL COMPANY • Barber, N.J., Chicago, New Orleans
STANDARD OIL COMPANY OF TEXAS • El Paso, Texas
THE CALIFORNIA COMPANY • Denver, Colorado

SUPPORTED BY CREOSOTED FOUNDATION PILES carrying 30 to 35 tons each!



Passenger Station of the Cincinnati Union Terminal, Cincinnati, Ohio.

CINCINNATI'S Union Terminal was completed in 1933 at a cost of $41,000,000. This tremendous railroad terminal was constructed on a filled site; therefore, it was necessary to found almost all of the structures on piling. Nearly 10,000 creosoted pine piles, ranging from 45′ to 65′ in length, were used. Today, each of the creosoted foundation piles is *still* carrying 30 to 35 tons . . . *without settlement in the heavy fill.*

During the construction of this project, because the heads of all timber piles were so far above ground-water level, engineers of the Terminal Company made an exhaustive study of the permanence of creosoted wood piles. Their conclusion: pressure-creosoted wood, when embedded in earth, regardless of the moisture in the soil, *may be considered as permanent construction.*

Also, competent authorities have estimated that the use of creosoted timber piles undoubtedly accounted for a saving of close to $500,000 over any other type of permanent piles which could have been used in this construction.

Many Koppers Pressure-Creosoted Foundation Piles were used in this project. Naturally, Koppers is proud to have had a part in once again proving that creosoted pile foundations are both permanent and economical.

KOPPERS COMPANY, INC, Pittsburgh 19, Pa.

KOPPERS PRESSURE-TREATED WOOD

(Continued from page 38)

J. G. Mingle, Indianapolis, Ind., combustion engineer, has been appointed superintendent of anti-air pollution work for the city. He was associated with the Draco Corp. and served as consulting engineer on projects throughout the country. He was graduated from Purdue University in 1913.

Hayward Cox, division railroad engineer, South Atlantic Division, Corps of Engineers, Atlanta, Ga., left, visits the main bridges on the N., C. & St. L. relocation at Allatoona Reservoir near Cartersville, Ga., with F. A. Patton, resident engineer on the project for the Nashville, Chattanooga & St. Louis R.R.

Thomas G. Miller, right, assistant to superintendent of public works, Ithaca, N. Y., and Prof. Donald J. Belcher of Cornell University inspect the recently replaced 24-in. main which supplies the major portion of the water to the city of Ithaca. The pipe had been broken and buried as a result of a landslide.

Prof. H. Garland Hershey, director of the state hydraulics laboratory, University of Iowa, Iowa City, has been chosen chairman of the newly created Iowa Natural Resources Council, set up by the 1949 legislature to draft a state-wide program of water resources control and conservation and to guide state and local authorities in flood control, sewage disposal, waterways improvement and other kindred subjects.

Chief highway engineer of the Manitoba Department of Highways, **Thomas Wilson,** has retired after 42 years in the service of Manitoba.

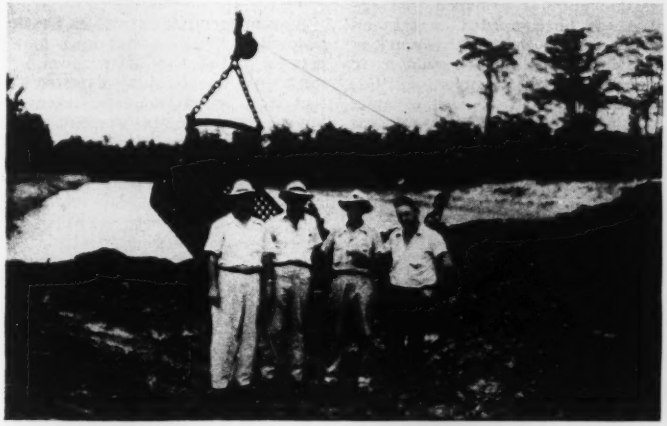
Clarence Williamson Butts, an old timer with the Tennessee State Highway Department, has retired. He served from October, 1919, until July 1, last, except when he was borrowed by the federal government to serve as safety director for the CWA and TERA and safety consultant for WPA. During his long tenure with the Tennessee department he first served as a resident engineer, advancing successively to be assistant division engineer, division engineer, assistant state highway engineer and finally state traffic engineer, which latter position he held from December, 1945 until his retirement.

Lt. Col. Robt. C. Bahr, Corps of Engineers, has become executive officer with the Memphis, Tenn., engineer district, succeeding **Lt. Col. D. L. Jarrett,** who has joined the Office of the Chief of Engineers at Washington, D. C.

William R. Ganser, Jr., structural engineer, has joined the engineering staff of the Timber Engineering Co., Washington, D. C. A graduate civil engineer from Lafayette College, previously he worked for John N. Spooner & Sons, Inc. of New York on various harbor construction projects.

Fred Facey, chief of the engineering department of the Savannah District, Corps of Engineers, has been appointed resident engineer of the Clark Hill Dam project near Augusta, Ga. He succeeds **Grady Bain,** who has been relieved because of physical disability. Mr. Facey has been with the Corps of Engineers 15 years.

Henry N. Nabers, a civil engineer, is city manager of Waxahachie, Tex. He succeeds **G. O. Summers,** who resigned to become city manager at Longview. Nabers was graduated from Texas A. & M. College in 1942 with a degree in civil engineering, specializing in city management. He served two and a half years in the U. S. Marines, then worked for the state highway and state health departments until 1944. Since, he has been assistant city manager at Wichita Falls.



Above is a picture of the supervisory personnel on Bayou Bodcau Dam in North Bossier Parish, La. Left to right, Chas. W. Surbey, resident engineer, and Edw. D. Walsh, asst. resident engineer, Corps of Engineers; Freeman J. Kyle, project manager, Markham and Brown-Kearney, Crume & Co., contractors, and W. B. Turner, dragline operator. Photo was taken just prior to the cutting of the dike in the outlet channel to allow water from Bodcau Lake to flow into the stilling basin. Later a similar dike in the intake channel was cut, completing the diversion of the bayou through the outlet structure of two 10-ft. conduits.

Joseph Banta has been appointed director of the city-county plan commission at Marion, Ind., succeeding **Robert Adams** who becomes director of planning at Fort Wayne.

E. B. Cavello has returned to the Mississippi State Highway Department as construction engineer in charge of primary roads and urban engineering. He was commanding officer of the 26th Naval Construction Regiment at Guam and afterwards was with R. B. Tyler Co., Louisville, Ky. Before the war he was construction engineer with the highway department and at one time was with the Corps of Engineers at Vicksburg, Miss.

Charles J. Geyer of Richmond, Va., has been elected a vice-president of the Chesapeake & Ohio Railway. He will be in charge of maintenance of way and construction for the system, including the Pere Marquette. He has been with the Chesapeake & Ohio for 41 years.

Two engineers have been promoted to top positions by the Texas Power & Light Co., Dallas. **W. W. Lynch,** executive vice-president since 1947, succeeds **John W. Carpenter** as president and general manager. Carpenter will continue as chairman of the board. **Lee E. Cook** was promoted to vice-president, assistant general manager, and director. He has been on the engineering staff since 1920. Lynch served in the engineering and construction branches from 1923 to 1936 when he became a vice-president. Both are engineering graduates of Texas A. & M. College.

Gustaf Adolph Swanson has been named construction engineer for the Bureau of Reclamation to supervise completion of Anderson Ranch Dam for the Boise, Idaho, project. Office engineer on the project since 1944, Mr. Swanson replaces **Donald S. Walter,** who is now regional engineer in the headquarters office for Region I at Boise. Mr. Swanson joined the bureau in 1928. After four years on the Yakima project and seven years at Hoover Dam, he worked on Shasta and Keswick dams, of California's Central Valley project, before going to the Anderson Ranch job. He is an engineering graduate of the University of Iowa.

Mort Beck has been named director of public utilities at Lexington, N. C., and **Claude Brockett,** who had served as Beck's assistant, has replaced him as superintendent of the municipal water and sewer department.

MUNICIPAL AFFAIRS

Water Works Financing

Los Angeles, Calif., plans to spend $24,969,000 during the 1949-50 fiscal year on a construction program for its water system to meet growing demands. The program will be financed by a $10,000,000 water revenue bond issue, just authorized by the Board of Water and Power Commissioners; by the sale of another $10,000,000 in bonds authorized in August of 1948 but never sold, and by $4,969,000 from 1949 earnings.

Completion of the Baldwin Hills reservoir, with a storage capacity of 293 million gallons, plus the inlet and outlet lines, connecting the reservoir to Franklin reservoir, and to city distribution mains, will cost about $7,500,000.

Another major water project scheduled to begin this year is construction of a 66-in. pipe line, connecting the Metropolitan Water District's trunk line in Eagle Rock with the Hollywood reservoir. The 10-mi. pipe line will have a capacity of 171 mgd, and expenditures during the fiscal year are estimated at $3,000,000.

An estimated $9,000,000 will be spent for extension of water mains to serve new customers, for replacement of existing mains with larger pipes, and for installation of services, according to Laurance E. Goit, chief engineer of water works.

The board of water commissioners of Billings, Mont., has been authorized by the city council to enter into a contract with Black & Veatch, Kansas City, Mo., consulting engineers, to make a survey of water transmission and distribution lines to map present and future needs.

The engineers told the council "work recommended in the survey report probably will cover several hundred thousand dollars worth of construction for which no additional engineering outside the city engineer's office will be required."

The survey is made necessary by a rapid growth and expansion of the city. Most of the growth has been in suburban areas, requiring a larger water supply and more distribution lines.

Special water taxes

The Missouri Public Service Commission has ruled that residents of cities in St. Louis County which impose special taxes on the St. Louis County Water Co. must pay for those taxes themselves.

At present, 20 of the 75 cities, towns and villages in St. Louis County collect such special taxes from the water company but the residents of those 20 communities pay no more for their water, although their cities profit from the taxes. The tax burdens imposed on the water company are shared equally, in accordance with the volume of water used, by all of the customers of the company.

In the ruling the commission said: "It is the considered judgment of this commission that the consumers in any and all municipalities which seek to obtain revenue from such taxes or payments should bear the burden of providing such revenues.

"Such exactions, whether in the nature of license taxes, occupational taxes, street rentals, franchise or kindred taxes, street rentals, franchise payment or any other similar or kindred tax, should be paid by the water consumer residing in the municipality which receives such taxes or payments. The allocation of such costs should be accomplished by and reflected in the rates themselves rather than by adding to each individual consumer's bill as a separate item thereof."

Municipal Briefs

Dallas, Tex., is having plans drawn for the construction of a new $12,300,000 water purification plant with a storage reservoir and output mains. The plant will have a capacity of 96,000,000 gpd. It is hoped that the plans can be completed by the end of this year so that construction can start next spring and the plant be in operation by the summer of 1951, according to Karl F. Hoefle, water superintendent. Negotiations are now under way to purchase a site for the plant at Carrollton, nine miles from Dallas. In order to be able to issue bonds to finance the construction of the plant, Dallas will seek to raise the city debt limit in a charter election in October.

Van Wert, Ohio, is selling $850,000 in bonds to finance construction of a new water works system, expected to take two years to complete. Water rental fees will be doubled. The minimum cost per quarter will be raised from $3 to $6.

A multi-million dollar parking structure, to be built over the Erie Railroad near downtown Youngstown, Ohio, to accommodate 4,000 cars, is being sponsored by the Greater Youngstown Area Foundation, which is raising funds to finance an engineering study of the project.

In November, Toledo, Ohio, voters for the second successive year will be asked to release the surplus from the city's one-percent pay-roll income tax, (now figured at $2,875,000), so that capital improvements can be financed. Under a proposal adopted by city council, $1,375,000 of the surplus would go to the general fund and the remaining $1,500,000 to the capital improvements fund. A companion proposal to be submitted to voters would request approval to authorize construction of the proposed North End bridge, estimated to cost the city $1,750,000.

A manufacturing plant at South Milwaukee, Wis. has shut down temporarily in the face of warnings by the county smoke control department that legal action would be taken if fumes from the plant were not checked.

FIRST LARGE GROUP OF LUSTRON HOMES has been completed at the Marine Corps Schools, Quantico, Va. Thirty-five homes were erected for enlisted men and their families, 25 more for officers. Half of them are three-bedroom houses, of a type not yet available to the public. They are 31 by 35 ft. and 31 by 39 ft. in overall dimensions.

OBITUARY

Bert W. Wagner, 60, an impervious core inspector for the U. S. Corps of Engineers on the Cottage Grove Dam, Oregon, was killed Aug. 8 when he stepped out of the way of one tractor directly into the path of another.

Philip E. Bond, 55, former city engineer of Holyoke, Mass., and a consulting engineer with Tighe & Bond, died at Holyoke, Aug. 18. A civil engineer graduate of the University of Michigan, he later attended the U. S. Naval Academy and was an ensign in the first world war. At one time he was engineer of Hampden County, Mass.

Michael F. Niland, 75, veteran building contractor of Lockport, N. Y., and former president of the New York State Contractors Association, died Aug. 17. He was vice-president and secretary of the C. B. Whitmore Co., contractors, and a member of the Lockport Planning and Zoning Commission.

Almon L. Fales, 73, consulting engineer and former partner in the firm of Metcalf & Eddy, Boston, Mass., died at Newton Center, Mass., on Aug. 19. He was graduated from the Worcester Polytechnic Institute in 1898. Until 1913 he was with the Worcester sewage purification works, rising to superintendent and director of testing laboratories. Joining Metcalf & Eddy on leaving Worcester, he became a national authority in sanitary engineering, notably in the fields of stream pollution abatement, sewage purification and treatment of industrial wastes. In both world wars he served the government as a consultant on sewage disposal methods at army camps and treatment of wastes from ordnance plants.

John Nelson Dodds, 42, service engineer for the Cleveland Trencher Co., Cleveland, Ohio, died in Cleveland July 29. He had been with the company nine years, and was widely known throughout the construction industry.

John F. Kline, 76, engineer and representative of the Pittsburg Testing Laboratory in the Milwaukee, Wis. area, since 1902, died August 13.

James H. Ellison, 89, one of the oldtime operators in the railroad construction field, died at his home in Minneapolis, Minn., Aug. 17. He began his career in the engineering department of the Great Northern and Northern Pacific railroads, and joined Winston Bros., contractors, in 1895, remaining with that company until his retirement.

Charles A. Ellis, 74, designing engineer of the Golden Gate Bridge at San Francisco, died in Evanston, Illinois Aug. 22. Mr. Ellis, a noted educator, was educated at Wesleyan and Illinois. He designed the Montreal Harbor Bridge and was one of the engineers who designed a bridge at East St. Louis, Illinois. Formerly with the American Bridge Co., Mr. Ellis was vice-president of the Strauss Engineering Corp. from 1921 to 1932, and from 1932 to 1934 had a private practice as construction engineer. He was professor and head of the division of structural engineering at Purdue University from 1934 to 1946 and had been professor emeritus since then. From 1908 to 1912 he was assistant professor of engineering at the University of Michigan. He served in the same capacity at the University of Illinois from 1914 to 1915.

Roy A. Swartwout, 69, an engineer with the Capital Bridge Co., Lincoln, Neb., for 15 years, died at Clay Center, Kan., Aug. 16.

Sidney K. Clapp, 76, for 40 years division engineer with the New York City Board of Water Supply before retirement in 1945, died at Kingston, N. Y., Aug. 15. An 1895 graduate of Massachusetts Institute of Technology, he started with the Boston & Maine Railroad. In 1903 he went to New York as chief draftsman for the Catskill division of the New York City Board of Water Supply. He became private secretary to J. Waldo Smith, chief engineer, and later an assistant engineer on construction of the Ashokan and Gilboa reservoirs of the Catskill Mountain water supply system. In 1905 he supervised the planting of 2,500,000 trees on the watershed.

R. R. Hoover of Mount Sterling, Ky., Montgomery County construction engineer, died at Clifton Forge, Va., Aug. 10.

Albert Lehman, 45, highway engineer of Morrison County, Minn., and previously the same for Sibley County, died at Little Falls, Minn., recently.

Warren Henry, 63, chief engineer of the Illinois Commerce Commission was killed in an automobile accident at Chatham, Ont., Aug. 25.

Elections and Activities

Ohio Turnpike Committee, which sponsored the legislation creating the Ohio Turnpike Commission to build toll super-highways, is now a permanent organization to encourage and promote a proper highway program for Ohio and the building and construction of safe and adequate highways; to collect and circulate information on Ohio highways; to prepare and initiate legislation and other public action with reference to highways, etc. Ernest M. Green, Cleveland, is president; A. C. Neff, Middletown; Grayum Bing, Hudson; Paul Varga, jr., Columbus; John L. Beattie, E. T. Ripley, and T. E. Terry, Cleveland, vice-presidents; Ralph W. Sanborn, Columbus, secretary-treasurer. Trustees are: Frank Converse, Cleveland; Ray Finn and William J. Reardon, Cincinnati; William McGraw, Bellaire; Charles McKee, and Mr. Sanborn, both of Columbus, and Don Patterson, Lorain.

MAJOR MEETINGS

New England Water Works Association, The Balsams, Dixville Notch, N. H., Sept. 13-16.

Public Works Congress and Equipment Show, Municipal Auditorium, Kansas City, Mo., Sept. 18-21.

Institute of Traffic Engineers, Wardman Parfi Hotel, Washington, D. C., Sept. 25-28.

American Society of Planning Officials, Hotel Statler, Cleveland, Ohio, Oct. 10-12.

American Society for Testing Materials —First Pacific Area National Meeting, Fairmont Hotel, San Francisco, Calif., Oct. 10-14.

Federation of Sewage Works Associations. Hotel Statler, Boston, Mass., Oct. 17-20.

Metal Congress and Exhibition, Public Auditorium, Cleveland, Ohio, Oct. 17-21.

American Public Health Association, Hotel Statler and Hotel New Yorker, New York City, Oct. 24-28.

37th National Safety Congress, Stevens Hotel, Chicago, Oct. 24-28.

National Conference on Industrial Hydraulics, Sheraton Hotel, Chicago, Ill., Oct. 26-27.

National Congress on Industrial Hydraulics, Sheraton Hotel, Chicago, Oct. 26-27.

Engineers Council for Professional Development. Edgewater Beach Hotel, Chicago, Oct. 28-29.

National Reclamation Association, Hotel Newhouse, Salt Lake City, Utah, Nov. 2-4.

American Society of Civil Engineers, fall meeting, Hotel Statler, Washington, D. C., Nov. 2-4.

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
October Materials and Labor Prices will appear in the October 6, 1949 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots incl. $1.00 per bbl. for bags, cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4, over.
	Cloth	Paper	Bulk	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand gray	Lt. wgt. agg.	50 c.y., del.
Atlanta	$4.11	$3.36	$3.05	$2.00	$2.00	$1.75	$2.10	$2.10	$1.65	$1.85	$0.1725	$0.1725	$11.00
Baltimore	4.06	3.26	3.00	2.30‡*a*	2.30‡*a*	1.95‡*a*	2.60‡*a*	2.70‡*a*	2.45‡*a*	2.45‡*a*	.16	.16*a*	10.25
Birmingham	3.80	3.05	....	2.06	2.06	1.66	2.50	2.50	1.00	1.20	.165	.165	7.75
Boston	4.50	3.75	3.44	2.50*a*	2.50*a*	2.50*a*	1.60*a*	1.70*a*	....	....	.17	.185*a*	10.50*h*
Chicago	3.61/3.67	2.86/2.92	2.56/2.62	2.75‡*b*	2.75‡*b*	3.20‡*b*	2.75‡*b*	2.75‡*b*	2.00‡	2.00‡	.20	.20*b*	....
Cincinnati	4.13	3.25	3.07	1.85‡*c*	1.85‡*c*	1.75‡*c*	2.20‡*h*	2.20‡*h*	1.50	1.50	.19	.205	10.60*d*
Cleveland	3.85	3.05	2.87	1.90*def*	1.65*df*	1.55*d*	3.55‡*a*	3.55‡*a*	2.75	2.75	....	.21	11.80*g*
Dallas	3.57	2.82	2.52	2.00	2.15	1.75	2.10	2.15	....	....	.089*e*	.125	9.30
Denver	....	3.54	3.29	1.85	2.00	1.15	....	....	....	....	.20	.23*a*	9.65
Detroit	3.75	2.98	2.73	3.00‡*b*	2.95‡*b*	2.75‡*b*	3.00‡	3.00‡	3.00‡	3.00‡	.17	.18*a*	9.15*f*
Kansas City	3.91	3.16	2.85	1.95	1.95	1.30	1.45*d*	1.45*d*	....	....	.15*ag*	.20*eh*	10.40*b*
Los Angeles	....	3.72*a*	3.32*a*	1.94‡*a*	2.04‡*a*	1.74‡*a*	1.92‡*a*	1.92‡*a*	....	....	....	.075*f*	10.24*h*
Minneapolis	4.09*ed*	3.29*ed*	3.03*ed*	2.20‡*ag*	2.20‡*ag*	1.35‡*ag*	2.50‡*ag*	2.50‡*ag*	....	....	.21*i*	....	10.30*fi*
Montreal	....	2.46*ac*	2.31*ac*	....	2.50*hi*	2.00*i*	.85*ij*	1.10*ij*	....	....	.22	.16*a*	9.05*ek*
New Orleans	....	2.90*e*	2.65*e*	2.32	2.32	1.82	....	....	1.05	1.25	.23	....	12.40
New York	4.21	3.41	3.15	2.00*bk*	2.00*bk*	1.45*bk*	2.25*bl*	2.25*bl*	....	....	.18*h*	.18*ah*	10.50*a*
Philadelphia	3.90/4.20‡	3.15/3.45‡	2.84/3.14‡	2.30‡	2.40‡	2.05‡	1.90‡	1.95‡	1.50	1.50	18/.22	....	9.85
Pittsburgh	3.90	3.18	2.85	2.05‡	2.05‡	3.00‡	2.50‡	2.50‡	2.05	2.05	.22*d*	.22*d*	10.85
St. Louis	3.80*b*	3.05*b*	2.75*b*	2.60‡*am*	2.40‡*am*	2.00/2.40‡*am*	1.60*j*	1.60*j*	1.15	1.15	.215	.24*cs*	10.40
San Francisco	....	3.39	2.99	1.84	1.84	1.94	1.94	....	....	....	....	.25*c*	10.75*s*
Seattle	....	3.45*a*	2.95*a*	2.75‡*bm*	2.75‡*bm*	2.75‡*bm*	3.50‡*bm*	3.50‡*bm*	....	....	.22*j*	.31‡35	9.75*j*

‡ Delivered. * Prices incl. dealers comm. except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers' comm. not incl. *d* Dealers sell only LCL. *e* Plus switching charges.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *d* F.o.b. plant. *e* ¼". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson River. *m* Less 2% for cash.

CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5¼ x 8 x 12 in. *f* 4 x 8 x 12 std. wgt. *g* F.o.b. truck at job. *h* F.o.b. plant. *i* Less 2% for cash. *j* Less 1% for cash.
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cu. brackets. *d* Truck loads up to 500 cu. yds. *e* 2,000 lb. coner. *f* 2500 lb. comp. *g* Aver. haul 7–9 mi. zone. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For cloth bags, add $1.05 per bbl.; 25¢ refund allowed for each returnable bag; for paper bags add 28¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.40†	Buffington, Ind.	$2.20	Steelton, Minn.	$2.40	Muskegon, Mich.	$2.40†	Toledo, O.	$2.40†
Clinchfield, Ga.	2.40†	Independence, Kan.	2.30	Leeds, Ala.	2.25	Saginaw, Mich.	2.35†	Milwaukee, Wis.	2.40†
Kingsport, Tenn.	2.40†	Hannibal, Mo.	2.35	Duluth, Minn.	2.40	Wyandotte, Mich.	2.40†	Green Bay, Wis.	2.40†
West Des Moines, Iowa	2.30†	Northampton, Pa.	2.30	Hudson, N. Y.	2.30	Buffalo, N. Y.	2.40†	Ironton, O.	2.30
Nazareth Pa	2.30†	Universal, Pa.	2.30	Alpena, Mich.	2.25†	Oswego, N. Y.	2.50†	Montreal City	2.13
Bath, Pa.	2.30†	Waco, Tex. (+ 9¢ tax)	2.20	Detroit, Mich.	2.40†	Cleveland, O.	2.40†	W. Winfield, Pa.	2.30†

‡ *Prices to hold for third quarter of* 1949.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-breaking) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$73.00	$35.00	$2.25	....	....	....	....	....	....	....	....	....
Baltimore	150.00‡	57.70‡	....	$23.00	....	$.095	$0.15	$.095	$.17	$.095*i*	$.095	$0.115
Birmingham	.....	32.50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	24.50*a*	$35.50*a*	.1036*a*	.185*a*	.115*aw*	.205*aw*	.10*a*	.113*a*	.205*a*
Chicago	150.00‡*a*	85.00/88.00‡*b*	3.10/4.15‡*f*	20.25*b*	30.25*b*	19.25*bw*	29.25*bw*	.0875*bw*	.16*w*	.075*b*	.1025/.1075*b*	.15/.1675*b*
Cincinnati	.....	.....	.....	22.50*k*	....	.1025	.0990	.0965*w*	.0965	.....	.....	.....
Cleveland	.....	49.00‡	3.68*g*	25.00	35.00	25.00*v*	34.50*v*	.11*w*	.22*w*	.10	.12	.25
Dallas	*e*	40.00	*e*	23.95	42.97	.1012	.1898	26.99	47.77	.0987	.1062	.1423
Denver	.....	43.00	.....	.....	....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	.....	.....	28.45	....	.125	.....	.1188*w*	.....	.....	.....	.1925
Kansas City	.....	40.00*d*	.....	19.05*el*	....	.....	.....	.075*ew*	.0775*w*	.065*e*	.....	.....
Los Angeles	*e*	.....	*e*	13.50*dm*	....	13.50*lv*	.....	15.00*d*	.....	13.50*dv*	.077*j*	.1575*j*
Minneapolis	.....	.....	2.83*h*	24.00	35.00	22.00*v*	33.00*v*	24.00	35.00	.085	.12	.22
Montreal	137.00	*e*	*e*	25.00*n*	34.65*n*	15.70*nu*	20.05*nu*	15.70*nu*	17.70*nu*	14.20*ns*	.174*n*	.215*ns*
New Orleans	.....	.....	.....	16.50*e*	....*o*	16.50*ev*	.....*o*	.08*ew*	.....*o*	.0775	.08	.1425*t*
New York	.....	.....	2.35*f*	25.50	37.86*q*	24.50*v*	43.88*qv*	.1040*w*	.1867*qw*	.0990	.1040	.1847*q*
Philadelphia	150.00	80.00/90.00	4.06	23.00	....	22.00*v*	.....	.095*w*	.....	.....	.....	.....
Pittsburgh	165.00	42.00	4.50	22.00	36.00	.11	.23	27.00	37.00	.095	.10	.21
St. Louis	.....	.....	.....	21.65*f*	....	16.48	.....	.0925*w*	.....	.15	.1081	.1075
San Francisco	.....	57.75*e*	.....	15.50*g*	31.00*gp*	15.50*jkv*	.....	17.50*q*	.....	.....	.09	.16
Seattle	.....	.....	.....	15.50*h*	36.00*h*	16.00*hv*	.....	17.50*h*	21.50*hr*	16.00*hv*	.08*h*	.09*h*

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *e* F.o.b. Buffalo, Kans. *e* Not used. *f* 2" interior 6¢ treat. *g* 3". *h* 8¢ treat.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* Bulk refinery. *j* F.o.b. refinery, Englewood, Calif. *k* 50-300 penetr. *l* Less than 100 penetr. *m* 40–80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* Use of reconditioned drums. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 55-gal. drums. *u* Per 100 gal. *v* Per ton. *w* Per gal.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT. SHAPES–PLATE	REINF. BARS*ab* billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standards	Light *cf*	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates*g*	Track Bolts *d*
Birmingham Area..	$3.25	$3.35	$6.75	....	$64.00	$71.00	Not	$4.25	$5.35	$4.05	.. ..
Chicago Area.....	3.25	3.35	6.75	$4.05	64.00	71.00	avail-	4.25	5.25	4.05	..
Pittsburgh Area... .	3.25	3.35	6.75	4.05	64.00	71.00	able	4.25	5.25	4.05	....
Buffalo Area.....	3.30	3.35	6.75	4.05	64.00	71.00	....	4.25	5.35	4.05	$8.50
Cleveland.....	..	....	6.75	....	.....	.....	....	....	....	....	8.50
Youngstown Area.....	....	3.35	....	..	.....	.....	....	....	5.35	....	....
Geneva	3.25	....	....	....	.....	.....	....	....	....	....	....
Los Angeles..... ...	....	4.25	....	....	.....	.....	....	....	5.35	....	....
Pueblo.....	3.25	3.35	....	....	64.00	71.00	....	4.25	5.35	4.05	8.50

a Fabricated: To consumers: $4.25; except $5.00 Seattle, Wash. *b* Rail steel price $3.85; Williamsport, Pa. *c* Rail steel $102 per ton Williamsport, Pa. *d* Treated. Untreated $8.25. $85.00 Minnequa, Colo. *e* Except $66.00 Minnequa, Colo. *f* Except *g* Except $4.20 Pittsburg, Calif.; $4.50 Seattle, Wash.

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES	REINFORCING BARS*g* Per 100 lb., base price *u*		EXPANDED METAL LATH*k* Per 100 sq. yd., carload lots		WELDED FABRIC REINFORCING*d* Per 100 sq. ft., carload lots		
	Per 100 lb base price	5 tons to carload lot *b* New billet	Rail steel	Add switch	$/cwt for Del.	Std. diamond mesh, 3.4 lb.	Std. ribbed 3.4 lb.	4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta..... ..	$4.75	$5.225*k*	$5.225*k*	$.025	$.10	$31.50	$31.50	A.P.M.* Joliet, Illinois, Donora, Penn., $2.36	A.P.M.* Joliet, Illinois, Donora, Penn., $1.63	A.P.M.* Joliet, Illinois, Donora, Penn., $2.47
Baltimore.....	5.51	4.47*l*	.....	....	.10	40.00	43.00	F.o.b. Mill: Monessen, Penn., $2.36	F.o.b. Mill: Monessen, Penn., $1.64	F.o.b. Mill: Monessen, Penn., $2.48
Birmingham...	5.08	5.08	5.50	.05	.15	43.00*p*	45.50*p*			
Boston..... ..	5.57*k*	5.46*k*	5.34*ke*	....	.10/.15	31.00	33.00			
Chicago.....	5.05	4.70*ff*	4.70*ff*	.05	....	31.00‡	33.00‡			
Cincinnati.....	5.43‡*r*	5.43*r*	. .	. .	...	31.00*zz*	33.00*zz*			
Cleveland.....	5.01*hh*	4.37*v*	....	....	.10	34.50	36.50			
Dallas.....	6.25	5.00	5.00	....	. .	43.50	46.00			
Denver.....	6.45	6.65*c*	....	....	. .	47.00*a*	54.50*qq*			
Detroit.....	5.28	....	. ..	....	.10	30.00*x*	37.00*q*			
Kansas City...	5.50	4.80*d*	....	....	....	37.00	39.00			
Los Angeles....	5.75*f*	5.35*bb*	. .	....	.15	37.00*f*	41.00*kk*			
Minneapolis....	5.29	5.83*ll*	5.83*ll*	....	.15	34.50	36.50			
Montreal.....	5.25‡	5.15‡	5.15‡	....	....	44.10*h*	46.80*h*			
New Orleans...	....	5.00*ok*	....	.05	.10	32.00	32.00			
New York.....	5.13*r*	5.50	5.35	....	.15/.20	33.00*st*	35.00*st*			
Philadelphia...	5.25	5.36	....	....	....	30.00‡	32.00‡			
Pittsburgh.....	4.30/4.40	4.30/4.40	4.30/4.40	.05	.10	32.50	34.50			
St. Louis.....	5.42*k*	4.7528*c*	4.7528*c*	....	. ..	42.00*aa*	48.00*aa*			
San Francisco..	5.90*ii*	5.65	....	....	....	36.50	38.50			
Seattle.....	3.90*e*	5.25*el*	....	....	....	52.00*mm*	42.00*mmz*			

‡ Delivered. *a* Mill prices. *b* 1–5 tons, add 35*c*. Less than 1 ton, add 50*c*. *c* 20 tons or over base. *d* Mill price plus freight. *e* F.o.b. plant. *f* Includes delivery in free delivery zone. *g* High scrap steel prices cut former 15*c*. differences between new billet and rail steel. *h* List price. Dominion tax exempt. Provincial and Municipal tax extra. *i* Plus Dominion, Provincial and Municipal sales tax. *j* Price per ton. *k* F.o.b. city. *l* Intermediate and hard grade, new billet. *m* Per sq. yd. *n* 5 to 15 tons base. *p* Del. of 5000 sq. yd. or less. *q* Std. ribbed. 4 lb. per sq. yd. *r* 5 tons or over. *s* LCL. *t* Asphalt coated. *u* Note: Revised size extra—1 in., 1¼ in., 1½ in. 10*c*, ¾ in., ⅞ in. 15*c*, ½ in. 20*c*, ⅝ in. 35*c*, ¾ in. 55*c*, ⅞ in. $1.30. *v* Under 20 tons. Straight. *w* Copper bearing. *x* 2.5 lb. per sq. yd. *y* 3.093 transportation tax included. *z* Copper alloy. *aa* Delivered truck to job. Contractor to do unloading. *bb* Includes 55*c* extra for ½ in. size. *dd* F.o.b. dock. *ee* F.o.b. cars. *ff* Carload lots. *gg* Including sales tax. *hh* Delivered price is $5.01. *ii* Rolled at Geneva mill. Shapes rolled at Fontana, $6.90. *kk* ½" ribbed. *ll* 5 to 8 tons. *mm* 2% off for cash.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13–44T				CLAY DRAIN TILE ASTM C4–24 Per 1,000 ft., carload lots, f.o.b.		CONCRETE SEWER PIPE Per ft., delivered; ASTMC 14–41		*WROUGHT STEEL PIPE (Full standard weight)			
	Per net ton f.o.b. 6 in. to 24 in. *a*	std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36in. ds.	6 in.	8 in.	12 in.	24 in.				
Atlanta.....	$89.50	$0.43	$0.67	$3.39	$7.00	$114.00	$140.00	$0.45	$2.00	3½ to 6 in., Lap Weld‡	Galv %	31.0*a*	31.0*a*
Baltimore.....	93.86	.52	.975	4.21	9.34	178.20	228.00	.80	2.25				
Birmingham.....	82.50	.40	.72	2.84	. .	210.00‡	375.00‡	.90	2.50		Black %	40.5*a* 42.5	29.0 42.5	27.0 42.5	27.0 42.5
Boston.....	97.46	.441*usz*	.8505*usz*	3.87*usy*	10.36*usy*	173.40	267.60	1.45‡*mg*	3.60‡*mg*						
Chicago.....	96.49	.59	1.14	4.81	13.45	150.00‡	270.00‡	.70	2.35						
Cincinnati.....	94.90	.427	.8505	3.37	10.25	220.00‡	340.00‡	.60	2.25‡						
Cleveland.....	97.13	.336*x*	648*x*	2.88*x*	8.405*x*	147.50	231.00	.65	2.50	2½ & 3 in., Butt Weld‡	Galv %	38.5	33.5	33.5	33.5
Dallas.....	99.28	.365	.657	2.63	6.25	.....	.....	.49	1.60			33.5	35.5	35.5	35.5
Denver.....	104.36	.41*dd*	.71*dd*	2.98*dd*		.....	.....	.74*dd*	2.50*dd*		Black %	50.5 49.5	50.5 49.5	50.5 49.5	50.5 49.5
Detroit.....	92.13	.55	1.06	4.18	12.09	200.00‡*m*	310.00‡*m*	.65	2.50						
Kansas City.....	98.41	.418*m*	.76*m*	3.00	.....	215.00*m*	375.00*m*	.60*l*	2.00*l*						
Los Angeles.....	111.06	.426	.927	4.532	11.298	193.00‡	324.00‡	.72	....						
Minneapolis.....	100.67	.62*mo*	1.12*mo*	4.35*mo*	.....	.....	.....	1.29*h*	3.67*h*						
Montreal.....	100.00	.77*s*	1.35*s*	4.47*s*	8.50*rs*	60*p*	48*p*	75.00‡*kaa*	240.00‡*kkaa*						
New Orleans.....	92.68	.448	81	4.36	8.79*	231.00*bb*	405.00*bb*	.55	1.95						
New York.....	92.80/97.50	.62	1.14	4.45	12.30	.....	.....	1.00	2.50						
Philadelphia.....	90.47	.54	.99	4.08	10.28	235.00‡	300.00‡	1.25*h*	3.20*h*						
Pittsburgh.....	97.76	.364*m*	.702*m*	2.70*m*	6.625*m*	134.20	197.40	1.05*h*	2.50*g*						
St. Louis	94.27	.48	.87	3.42	8.05	.....	.....	1.10*il*	2.20*hl*						
San Francisco ...	111.06	.50*d*	.99*d*	4.32*d*	10.80*d*	188.00*dl*	313.00*dl*	.69	2.85						
Seattle.....	112.95	.51*b*	91*b*	....	....	150.00*e*	.....	.80*ee*	2.40						

‡ Delivered. † F.o.b. *a* B. & S. class B and heavier, CL, Burlington, N. J. (base) $87.50. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $5 per ton additional. 30 in. and larger, usually $1 per ton less. *b* Extra strength ASTM C 200–44T. *c* 4-in., $90. *d* SS361-A. *e* 30 in. *g* Culvert pipe. Reinforced, ASTM C76–41. *h* Reinforced. ASTM C75–41. *i* Reinforced. ASTM C76–37. *j* Centrispun. *k* Per 100 ft. *l* F.o.b. plant. *m* Truck delivery. *o* Listed price is based on LCL (no minimum). *p* Less than 5 ton loads, price per ft. *t* Within switching limits. *u* ASTM C13–40. *v* F.o.b. city. *x* 2 ft. lengths. *y* 3 ft. lengths. *z* CESA A 60–1941 specifications used. *aa* No standard specifications in Can. *bb* Freight allowed to destination in city. *cc* Truck loads; f.o.b. plant, New ton. *dd* LCL, delivered, f.o.b. truck. *ee* 1% off for cash. * Not stocked, only made to order.

Mill: Lorain, Ohio; Sharpsville, Pa.; Youngstown, O.; Benwood, W. Va.; Sharon, Pa.; Ellwood, Pa.; Fontana, Calif.; Indiana Harbor, Ind.; Sparrows Pt., Md.

*WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt weld:* ¼ in., 5¼¢; ⅜ in., 6¢; ½ in., 6¢; ¾ in., 8½¢; 1 in., 11½¢; 1¼ in., 17¢; 1½ in., 23¢; 2 in., 27½¢; 2½ in., 37¢; 3 in., 58½¢.; 3½ in., 76½¢. *Lap weld:* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steel pipe. Discount for Pittsburgh base. *Butt weld* — 1 in. and 1¼ in. black, +4.5, galv. +27.0; 1¼ in. black, 1.5, galv. +23.5; 2 in. black 2, galv. +23.0. *Lap weld* — 2½ in. to 3½ in. black + 5, galv. +26.5; 4½ in. to 8 in. black + 2, galv. +22.0. Freight rates to destination to be added to name delivered price.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F. O. B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box.

(Prices in Bold Face)

All Fir boards, dimension, planks No. 2, Fir small timbers and timbers is No. 1. Lengths up to 20 ft.

(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 R&S	6x12 R&S	12x12 R&S	LONG LEAF Y. P. Merchantable grade up to 20 ft. 2x12 R&S	12x12 R&S	PLYWOOD Rail freight increment* (See note for base price) ¼"	¾"
Atlanta†	**$70.00**	**$71.00**	**$60.00**	**$62.00**	**$65.00**	**$68.00**	**$70.00**	.....	.....	.....	.....	**$22.32**	**$27.24**
Baltimore	**65.00**	**65.00**	**60.00**	**62.00**	**64.00**	**68.00**	**85.00**	.....	.....	**160.00**	**160.00**	**22.86**	**27.90**
	82.00	*82.00*	*78.00*	*78.00*	*78.00*	*78.00*	*84.50*	*81.00*	*81.00*	.....	.....	.....	.....
Birmingham	**83.00**	**87.50**	**73.00**	**75.00**	**78.00**	**82.50**	**95.00**	.....	.....	**130.00**	**125.00**	**21.78**	**26.58**
	80.00	*80.00*	*77.00*	*77.00*	*77.00*	*77.00*	*93.00*	*93.00*	*93.00*	.....	.....	.....	.....
Boston	77.00a	77.82a	82.00a	82.00a	82.00a	87.00a	.....	.....	.....	**105.00**	**105.00**	**22.86**	**27.90**
	88.00	*88.00*	*90.00*	*78.00*	*78.00*	*98.00*	*98.00*	*98.00*	*98.00*	.....	.....	.....	.....
Chicago‡	**77/79**	**79/80**	**70/72**	**77/79**	**76/82**	**82/84**	**88/90**	.....	.....	**114/116**	**114/116**	**18.72**	**22.80**
‡	*81/82*	*84/85*	*82/84*	*82/84*	*84/86*	*84/86*	*85/87*	*90/92*	*90/92*	.....	.....	.....	.....
Cincinnati	**82.50**	**83.00**	**83.00**	**83.00**	**83.00**	**98.00**	**123.00**	.....	.....	**118.00**	**128.00**	**21.78**	**26.58**
	110.00	*115.00*	*95.00*	*105.00*	*110.00*	*115.00*	*123.00*	*125.00*	*125.00*	.....	.....	.....	.....
Cleveland	**70/72**	**71/73**	**63.00**	**70/74**	**74/76**	**77/79**	*90.00*	*90.00*	*90.00*	.....	.....	**22.20**	**27.12**
Dallas†	**58.00**	**58.00**	**58.00**	**54.00**	**56.00**	**58.00**	**90.00**	.....	.....	**83.00**	**90.00**	**18.72**	**22.80**
Denver	*Not in stock*		*86.00*	*85.00*	*85.00*	*85.00*	*89.00*	*121.00*	*120.00*	.....	.....	**13.92**	**16.98**
Detroit	**74.00**	**76.00**	**65.00**	**75.00**	**75.00**	**75.00**	.....	.....	.....	.....	.....	**21.78**	**26.58**
	80.50	*80.50*	*85.00*	*85.00*	*83.00*	*82.75*	.....	.....	.....	.....	.....	.....	.....
Kansas City	**100.00**	**100.00**	**90.00**	**95.00**	**95.00**	**100.00**	**110.00**	.....	.....	.....	.....	**16.56**	**20.16**
‡	*85.00*	*85.60*	*90.00*	*95.00*	*90.00*	*90.00*	*100.00*	*125.00*	*125.00*	.....	.....	.....	.....
Los Angeles*	*68.00*	*68.00*	*68.00*	*68.00*	*68.00*	*68.00*	*75.00*	*85.00*	*75.00*	.....	.....	**13.38***ab*	**16.26***ab*
Minneapolis‡	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*100.00*	*120.00*	*120.00*	*120.00*	.....	.....	**16.56**	**20.16**
Montreal*ab*	**73.00**	**76.00**	**73.00**	**75.00**	**76.00**	**85.00**	.....	.....	.....	.....	.....	.....	.....
	155.00	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	.....	*135.00*	.....	.....	.....	.....	.....
New Orleans†	**66.00**	**70.00**	**70.00**	**75.00**	**75.00**	**70.00**	*85.00*	.....	.....	**100.00**	**105.00**	**18.72**	**22.80**
†	*68.70*	*68.70*	*71.00*	*75.00*	*72.50*	*72.50*	*67.00*	*67.00*	*67.00*	.....	.....	.....	.....
New York	**82.50/87.50**	**85/90**	**Range from $75.00 to $85.00**				**95/100**	.....	.....	**175/200***f*	**175/200***f*	**22.86**	**27.90**
‡	.....	.....	*Range from $87.50 to $95.00*				*95/100*	*102.50/115*	*102.50/115*	.....	.....	.....	.....
Philadelphia			**Range from $90.00 to $100.00**				**90/100**	.....	.....	**166.00**	**166.00**	**22.86**	**27.90**
			Range from $105.00 to $115.00				**105/115**	**122.00**	**122.00**	.....	.....	.....	.....
Pittsburgh†	**75/80**	**75/80**	**75/80**	**75/80**	**75/80**	**70/80**	**100.00**	.....	.....	.....	.....	**22.56**	**27.48**
†	*90/100*	*90/100*	*90/100*	*100/110*	*100/110*	*100/110*	*120/130*	*120.00*	*120.00*	.....	.....	.....	.....
St Louis‡c	**85.00**	**87.25**	**74.25***d*	**84.25***d*	**91.75***e*	**94.00***e*	.....	.....	.....	**104.75**	*137.50*	**18.72**	**22.80**
‡c	.....	.....	*99.50e*	*101.25e*	*102.25e*	*102.25e*	*106.50*	*130.00*	*137.50e*	.....	.....	.....	.....
San Francisco†	*68.00*	*68.00*	*68.00*	*66.00*	*66.00*	*65.00*	*65.00*	*65.00*	*65.00*	.....	.....	**10.08***a*	**12.30***a*
Seattle†	*62.50g*	*62.50g*	*62.50g*	*62.50g*	*62.50g*	*62.50g*	*62.50g*	*62.50g*	*62.50g*	.....	.....	.....	.....

† F.o.b. mill. ‡ Delivered. ¢ Retail-LCL. * Yard prices.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8-12 ft. lengths. *e* 8-16 ft. lengths. *f* 18 ft. or under. *g* No. 1 common.

PLYWOOD: Special concrete form grade Fir Plywood, 4'x 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ¼", $123.50; on ¾", $147.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum. * Freight rate increase of 4¢ per cwt., effective Jan. 11, not included in these figures.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS—Discounts from jobbers list, Jan. 16, 1946*a* Single or Double Thickness A quality	B quality	EXPLOSIVES—Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*	
Atlanta	76%	76%	$0.2025	
Baltimore	66-10%	67-10%	.2025	
Birmingham	68%	68%	.1575	
Boston	.....	60%i	.2025	
Chicago	67%	67%	.2025	
Cincinnati	66-10%*e*	66-10%*e*	.2025	
Cleveland	66-10-10-10%	66-10-10-10%	.2425	
Dallas	65%	65%	.215	
Denver	67%	67%	.2075	
Detroit	66-10-10%	66-10-10%	.2025	
Kansas City	65%*e*	65%*e*	.2075	
Los Angeles	58%	63%*f*	.21	
Minneapolis	64%	64%	.2075	
Montreal	40-5%*bc*	40-10-5%*bc*	18.90*h*	
New Orleans	68%	68%	.2125	
New York	71%	72%	.32*g*	
Philadelphia	70%	70%	.2025	
Pittsburgh	70%	70%	.175	
St. Louis	70-10%	70-10%	.2075	
San Francisco	66%	73%	.2075	
Seattle	54%	55%	.21	

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass: *a* Jobbers' list price per box, 14 x 20, ss, $20.75 for A quality, $18.00 for B quality; 14 x 20, ds, $30.75 for A quality, $26.00 for B quality. *b* Discount from list, Sept. 1939; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *e* Discount from list of Aug. 15, 1938. *f* ss; ds—62%. *i* Double thickness 65%.

Explosives: * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $0.00 per trip. *h* F.o.b. city per 100 lb. forcite, 40%. Forcite 60%, $20.65.

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.155	$0.1825	$0.2025
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.16 –.1675	.1875–.20	.2075–.22
Rocky Mtn. States	.16 –.1725	.1875–.20	.2075–.225
Pacific N. W. States	.1575–.17	.19 –.2025	.21 –.2225
Pacific S. W. States	.155 –.1625	.1875–.195	.2075–.2175

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail—Pine*	By Rail—Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.43	....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.46	....
12-in.—2-ft. from butt	6-in.	60 to 69-ft.	.50	....
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	....	.79
13-in.—3-ft. from butt	5-in.	91 to 100-ft.	....	.80
14-in.—2-ft. from butt	6-in.	50 to 69-ft.	.50	.87
14-in.—2-ft. from butt	6-in.	70 to 79-ft.	.54	.81
14-in.—2-ft. from butt	5-in.	80 to 85-ft.	.67	.82
14-in.—2-ft. from butt	5-in.	85 to 89-ft.	...	.83
14-in.—2-ft. from butt	5-in.	90 to 100-ft.	....	.87

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak¢	...	....	....	....
	Pine¢	....	....	....	....
New York	S. L. Sap Pine	$1.65	$2.85	$2.00	$3.30
	Mixed Oak	1.80	3.05	2.50	3.60
Birmingham	Hardwood	1.00	1.60*a*	....	2.25*a*
Chicago	Red Oak	....	2.55/2.60*a*	....	3.40/3.65*a*
Los Angeles	Douglas Fir	....	3.00*a*	....	. ..
	Redwood	1.86	....	....	....
Philadelphia	Red Oak	2.33	3.13*a*	3.10	4.25*a*
St. Louis	White Oak	2.75	....	3.50	....
	Red Oak	2.65	3.40*a*	3.40	4.15*a*
	Sap Pine or Cypress	3.30*a*	....	4.05	....
San Francisco	Douglas Fir	1.28*e*	2.24*f*	1.70*bf*	3.05*caf*
Montreal	Birch or Maple	....*h*	...*h*	....*h*	....*h*

Tr.—Treated; Untr.—Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. ¢ Not available

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$4.25
Chlorine cylinders, liquid, per lb. f.o.b. works	.07–.12
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	22.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	1.80
Soda ash, 58%, in paper bags, per 100 lb. dense	1.50
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works.	1.50
Sulphate of copper, in bags, 99% per 100 lb f.o.b. works	7.00

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	.. ...	.....	.....	.....	.....	.....	$25.00	$25.00	$19.00	$17.50	$17.50
Baltimore	$170.00	$180.00	$320.00	$375.00	.....	.....	32.00*k*	35.00*k*	30.00	20.00	.....
Birmingham	97.50	104 00	195.00	231.00	.....	.....	20.00*ff*	22.50*gg*	24.67	18.10	—.—
Boston	145.65†	155.35†	291.30†	330.15†	.....	.....	32.00*s*	35.00*s*	30.80†	26.40†	.....
Chicago	115.00	122.50	230.00	.....	.....	.....	21.00	23.00	28.50	19.50	—.—
Cincinnati	168.00*j*	178.00*j*	238.00*jdd*	328.00*f*	.....	.....	32.50*j*	38.00*j*	22.25*j*	20.50*j*	—.—
Cleveland	118.00*ee*	126.00*ee*	236.00*ee*	.....	.....	.....	28.50	28.50	24.00	22.00	27.50*ss*
Dallas	.....	110.00	.....	.....	.....	.....	18.75	33.25	28.00	22.00	.....
Denver	.....	.....	.....	.....	.....	.....	32.00	32.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	117.08	124.88	234.15	234.15	$290.68	$332.20	30.00*ee*	31.50*ee*	30.00	28.00	.....
Kansas City	115.50	125.00	... ..	.....	.....	.....	22.00*o*	25.00*o*	36.00*p*	30.00*p*	30.00*p*
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	20.00*§*	.....	.....	36.00	32.00
Minneapolis	158.00*p*	176.00*p*	330.00*p*	176.00*up*	.....	.....	30.00*up*	34.00	35.00*bbs*	26.00*bbs*	35.00*bbda*
Montreal	110.00*aq*	120.00*aq*	225.00*aq*	.....	.....	.....	25.50	35.00	22.40*u*	14.00*ub*	.....
New Orleans	160.00	160.00	300.00	.....	.....	.....	29.00	.....	38.00	26.00	37.50
New York	118.20*h*	126.00*h*	173.30*eh*	189.00*hn*	.....	.....	33.00	.....	34.40	26.80	.....
Philadelphia	126.30	134.80	252 60	302.74	361.35	455.74	27.00	30.00	29.75	17.50	24.50
Pittsburgh	98.00	105.80	181.85	207.30	265.35	303.60	26.00	38.00*y*	20.45	16.85	2.97*m*
St. Louis	120.00	138.50	252 50	252.50	339.50	.....	32.50*al*	30.50*al*	.80*aaap*	.60*aaap*	1.00*aaspss*
San Francisco	132.00*a*	148.50*a*	198.00*dda*	148.50*ta*	.....	.....	32.00	.....	24.95	24.95	2.49*m*
Seattle	150.00*ee*	160.00*ee*	.. ..	160.00*eeu*	.....	.....	32.00*s*	39.00*s*	32.00*shh*	32.00*shh*	3.60*mhh*

† F.o.b. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *f* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *i* F.o.b. warehouse only. *j* Truck load or over. *k* $1.00 discount. *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed tile. *o* F.o.b. Buffalo. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. plant.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases In oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Asphalt tar pitch 380 lb. bbl., per ton
Atlanta	$18.75	$29.325	$1.75	$2.70	$1.65	$2.06‡	$2.06‡	$2.06‡	$1.00‡	$36.00‡
Baltimore	18.50	28.95	2.10	4.27	2.80	2.96	2.56	2.56	.55	36.00
Birmingham	18.75	29 325	4.40	4.52	....	3.05	3.00	3.00	.48	42.00*ss*
Boston	18.50	28.95	....	....	....	....	....	2.75‡*g*	....	34.00
Chicago	18.50	28.95	....	....	....	2.34‡*u*	2.54‡*o*	2.54‡*o*	34.00‡*bbs*	37.00‡
Cincinnati	18.50	28.95	....	3.03	....	2.44‡	2.54‡*o*	3.50‡*o*	.35*y*‡	42.00‡
Cleveland	18.50	28.95	2.50	2.75*s*	2.35	2.32	2.41*o*	2.41*o*	.30*y*	36.10
Dallas	18.75	29 70	....	4.05	....	3.50*q*	3.75*q*	4.35*q*	.36	46.00
Denver	19.00	29 45	2 63	4.38	2.48	3.20*o*	2.20*o*	2.20*o*	.41*jj*	40.00
Detroit	18.50	28.95	2.50/2.60	3.35	2.50/2.60	2.32	2.41	2.41	....	35.00
Kansas City	18.50	29.075	....	....	....	1.65*e*	....	2.50	.315*y*	—.—
Los Angeles	18.50	29 20	2.80	3.75	3.50	2.41	1.91*e*	*l*	.45	*l*
Minneapolis	18.50	29 075	....	....	....	2.32*idd*	2.41*hidd*	2.41*hidd*	.336*idd*	35.00*rdd*
Montreal	.....	25 65	3.25*t*	4.20*t*	3.62*t*	3.25*t*	3.00*tf*	3.00*tf*	.85*t*	2.60*kt*
New York	18.50	28.95	3.45*y*	....	3.45*y*	2.32	2.41*o*	2.41*o*	.34*s*	35.00
Philadelphia	18.50	28 95	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	18 50	28 95	2.00	2.00	1.90	3 00	3.00*o*	3.00*o*	.37	38.00
St. Louis	18.50	28 95	...	....	....	2.41	2 47*h*	2.47*h*	.30	36.00
San Francisco	18 50	29 20	1.80	2.75*n*	1.35	2.27	3 30*aa*	....	.38*g*	.....
Seattle	18 50	29.45	2 67*m*	2.67*m*	....	3.23*mgee*	3.24*hmee*	....	.49*mee*	48.25*jmee*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 132 q. ft. *g* Per oil. 65 lb. *h* Net carload lot prices; Minneapolis and vicinity. *i* Asphalt pitch. *k* Per cwt. *l* Not used. *m* 1% discount or cash. *n* May, 1941 price. *o* Per 60-lb. roll. *q* Per 90-lb. roll. *r* F.o.b. factory Chicago. *s* ASTM Spec. D266-41. *t* Federal tax included. *u* Per 80 lb. square. *e* Per ton. *w* Price to large paint contractors = $1.25 less. *y* 55-gallon container. *z* Mineral surfaced. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement. Price per ton. *cc* LCL truck delivery. *dd* 2% cash discount. *ee* Asphalt, in 100 lb. package. *ff* 5-gal. drums.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heav. Const.
Atlanta	$2.50	$1 85	$2.00	$2.00	$2.00	$2.00	$2.00	$0 85	$0 95
Baltimore	3.00	2.25	2.65	2.40/2.60	2 25	2 25	2 25	1 25	1.25
Birmingham	2.50	1 95	2.15	1 75	2 20	2 25	2 25	1.00	1.10
Boston	2.625	2 25	2.40	2.60	2.70	2 50	2 45	1 65	1.65
Chicago	2.55	2.45	2.50	2.45	2.55	2.525	2 45	1 80	1.80
Cincinnati	2.575	2 25	2.425	1.60/2 60	2.425	2 45	2.40	1.535	1.46
Cleveland	2.575	1.525‡	2.575	2.525	2 525	2 525	2.575	1 85	1 725
Dallas	2 50†	2 125	2 25	2 25	2.50†	2 375	2.375	1.075	1.275
Denver	3.00	2 10	2 10	2 25	2.50	2 41	2 40	1.40	1.35
Detroit	2.625	2.325	2.575	2.575	2.625	2.60	2.50	1.675	1.675
Kansas City	2.60	2 15	2 30	2 375	2 75	2 30	2 375	1.575	1.575
Los Angeles	2.625	2 12	2 30	2 07	3.125*a*	2 50	2 50	1 57	1.57
Minneapolis	2 40	2 12	2.175	2 07	2.50	2 35	2 32	1.52	1.52
New Orleans	2.50	1 875	2.25	2 125	2 00	2 .0	2.25	1.025	1.025
New York	3.20*b*	2 75*b*	3.00	3.00	3.20*a*	3.00*b*	2.75*b*	1.70	1.70
Philadelphia	3.00	2.34/2.40	2.65	2.50	3.00	2.75/3.00	2.75	1.375	1.675
Pittsburgh	3.00	2 50	2.50	2 65	2.625	2 575	2.50	1.50	1.50
St. Louis	2.75	2.45	2.50	2 55	2 50	2.50	2.50	1 60	1.50/1.75
San Francisco	2 8125	2.16	2 40	2 125	2 8125	2 50	2.375	1.55	1 55
Seattle	3.00	2 195	2.395	2 33	2.495	2.395	2.50	1.795	1.83
Montreal*	1.40	1.25	1.30	1.20	1.40	1.35	1.15	.90	.80

a 6 hr. day. *b* 7 hr. day. * Cost of living bonus now included in basic wage. ‡ Includes 5¢ per hr. tool replacement. † Plus $5.00 daily bonus.

MEXICO CITY PRICES

In Pesos, F.o.b. City		July '49	Aug. '49
Common Wages—Building (8 hr. day)	av. per hr.	.57	.57
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	.75	.75
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	1.25	1.25
Bricklayers (8 hr. day)	av. per hr.	1.25	1.25
Struct. Iron Workers (8 hr. day)	av. per hr.	1.50	1.50
Struct. Steel Shapes			
3"-15" x 12 meters	per ton	1,050.00	1,050.00
Reinf. Steel, Corr. Rods			
⅜" x 12 meters	per ton	1,150.00	1,150.00
½" x 12 meters	per ton	1,130.00	1,130.00
⅝" x 12 meters	per ton	1,120.00	1,120.00
¾" x 12 meters	per ton	1,110.00	1,110.00
⅞" x 12 meters	per ton	1,11 .00	1,110.00
1" x 12 meters	per ton	1,110.00	1,110.00
Grave. truck load of 3½ cu. meters			
Blue Gravel	per tr. load	30.00	30.00
Rose Gravel	per tr. load	32.00	32.00
Cement, Std. Port. (Tolteca)	per ton	115.00	115.00
Lumber			
Mex. Sacred Fir (Oyamel)	per M ft.	375.00	375.00
1st Class Pine	per M ft.	700.00	700.00
2nd Class Pine	per M ft.	400.00	400.00

ENR Skilled Average: (Bricklayers, Carpenters, Ironworkers) $2.453. **ENR Common Average:** $1.478.

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

September 20

Md., Bel Air—Bd Educ., Harford Co., Bel Air, water supply and sewage sys., for North Harford High School. Plans deposit $25., Alex Shaw and Palmer, Fisher, Williams & Nes, Bel Air, archts.

September 20

S. C., Greer—City, settling basin extens. and construct a mixed basin. Plans deposit $15. Wiedeman & Singleton, P. O. Box 1878, Atlanta, Ga., engrs.

Va., Clintwood—Water Comn., Town of Clintwood, Div. No. II, Proposal No. 1 and No. 1-A, construction and installing WW imprv with pipe, valves, fittings, equip., connections, etc., incl. construct 1 deep well pumping station and booster pumping station with equip and pipe connections, concrete fdns. for water tanks. Div. No. III, Proposal No. 2, iron removal and filter plant with mixing and settling basin; Div. No. IV, Proposal No. 1, two 100,000 gal. standpipes of steel or gunite. Plans deposit $20. Wiley & Wilson, 905 Peoples Bank Bldg., Lynchburg, consult. engrs.

September 22

Tex., Lubbock—City, City Hall, approx. 25,000 lin. ft., 12, 16 and 24 in. water distr. mains and appurtenances. **$70,000.** Plans deposit $10. W. N. Harris, city engr. CD 12/18/47.

Bids Asked

Tex., Baytown—Baytown Constr. Co., c/o B. F. Sturman, Sterling Bldg., Houston, c.i. waterlines and facilities. **$45,000.**

LOW BIDDERS

Calif., Oakland—East Bay Municipal Utility Dist., 512 16 St., Aug. 24, concrete lined Seneca Reservoir, 30,000,000 gal. capacity. Spec. LS-473, from Erickson, Phillips, & Weisberg, 3341 Telegraph Ave., Oakland, **$290,388.** CD 8/3.

Calif., San Francisco—Pub. Utilities Comn., City Hall, Aug. 22, pipeline No. 2, Sect. C, San Joaquin River Crossing Hetch Hetchy Aqueduct, Spec. 216, Schedule 1, steel pipe, from P. & O Artukovich 13305 S San Pedro St., Los Angeles, **$835,316**; Schedule 2 concrete pipe, from United Concrete Pipe Corp., Box 425, Baldwin Park, **$776,762.** CD 8/11

Tex., Bishop—City, John G Michalk, mayor, Bishop, Aug. 12, 12 in. water supply well from Howard Fordtran, Bishop, **$31,000.** CD 8/3

Tex., Lampasas—City, W. M. Brook, mayor, City Hall, Aug. 22, WW sys. extens. and imprvs. from Brooks & Gardner, Amarillo, **$65,711.** Est. $100,000. CD 7/27.

Tex., Pecos—City, Pecos, Aug. 19, approx. 23,400 lin. ft. 4 to 12 in. watermain extens. and replacements from Enix Constr. Co., Hereford, $17,333, materials by owner, $66,500. Total **$83,833** Unit 1. CD 8/10

CONTRACTS AWARDED

●**Tex., Dallas**—Dallas County Water Control & Imprv Dist. 2, c/o Courthouse, water treatment plant to James C. Williams, Route 2, Box 427-A, **$1,029,932.** Bids 8/15. CD 8/23, under LB.

Tex., Victoria—E. I. duPont de Nemours & Co., du Pont Bldg., Wilmington, Del., 20 mi. waterline, purchase and hire. Approx. **$375,000.** CD 7/28.

SEWERS, WASTE DISPOSAL

BIDS ASKED

September 12

N. Y., Valley Stream—Bd. Trustees, at office Fletcher G. Chalmers, clk., Village Hall, remodeling incinerator. Plans deposit $25. Extended date. Henry W. Taylor, 11 Park Pl., New York, consult engr. CD 8/18.

September 13

Mass., Boston—Commonwealth of Massachusetts, Metropolitan Dist Comn., 20 Somerset St., Contr. 140, superstructure, installation of equip., etc., Nut Island, Sewage Treatment Plant, Quincy. Plans deposit $50. Karl R. Kennison, Quincy, ch. engr CD 5/12/44.

September 14

Pa., Cheyney—Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, rehabilitation of existing sewage treatment plant at Cheyney Training School for Teachers. Plans deposit $2.50. Louis T. Klauder & Assoc., 2136 Liberty-Lincoln Bldg., Phila., engrs

September 16

N. Y., Brooklyn—Dpt. P. Wks., Municipal Bldg., Zone 7, Contr. 4 A, completing structures and equip. at 26th Ward Sewage Treatment Works. Plans deposit $10. CD 8/22/45.

September 19

Tex., Pleasant Grove (Dallas P. O.)—Dallas County Water Control & Imprv. Dist. 3, c/o B. E. Scarratt, pres., 8122 Macon Ave., Dallas Zone 17, sewage treatment plant. $75,000. Plans deposit $25. Koch & Fowler, 713 Gr. Natl. Life Bldg., Dallas, engrs. CD 7/19.

September 20

Kan., Newton — City, city clk., City Hall, sewage disposal plant, equip., auxiliaries, appurtenances, etc., H. R. Hunter, 105 W. English St., Wichita, engr. CD 4/21.

September 26

Mass., Lawrence—City, city clk., City Hall, Hall, refuse incinerator, $270,000. Plans deposit $25., Ashton, Huntress & Pratt, 477 Essex St., archts., Metcalf & Eddy, 1300 Statler Bldg., Boston, engrs. extended date. CD 7/11.

September 27

N. Y., Brooklyn—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr No. 1, intercepting sewer, south branch, Owl's Head Sewage Treatment Works. Plans deposit $15. CD 12/28/44

N. Y., New York—Dpt. P. Wks., Municipal Bldg., Zone 7, Contr. 5, pumping units, Contr. 6, engines, generators and blowers for Hunts Point Sewage Treatment Works, plans deposit $10; Contr. 1, structures and equip. for Hunts Point Sewage Treatment Works, plans deposit $100 CD 11/21/44.

N. Y., New York—Dpt. P. Wks., Municipal Bldg., Zone 7, Contr. No. 2, electrical work for Hunts Point Sewage Treatment Works. Plans deposit $25; Contr. No. 3, plumbing. Plans deposit $10; Contr. 4, heating and ventilating. Plans deposit $15. CD 11/21/44.

Bids Asked

Tex., Baytown — Baytown Constr. Co., c/o B. F. Sturman, Sterling Bldg., Houston, sanitary and storm sewers. **$65,000.**

LOW BIDDERS

●**Calif., Oakland**—East Bay Municipal Utility Dist., 512 16 St., Oakland, Aug. 24, intercepting sewers, Spec. SD-36, frim Peter Kiewit Sons Co., 442 Post St. San Francisco. **$6,059,408.** CD 8/10

Md., Loch Raven—Dpt. P. P. Imprv., 506 Park Ave., Baltimore, sewage sys., Maryland Training School for Boys, from John Matricciani & Co., 409 S. Caroline St., Baltimore, **$131,943.** G. Douglas Andrews & Assoc., 212 Washington Ave., Towson, engrs.

Mass., Attleboro—City, P. Wks. Dpt., City Hall, Brook St. drain, from N. Scioletti, 15 Elm St., Hyde Park, **$63,761**, Thomas Worcester Inc., 84 State St., Boston, consult. engr.

Tex., Lampasas—City, City Hall, cancelled bids to have been opened Aug. 22, sanitary sewer sys. extens. and enlargement. **$75,000.** CD 7/27.

CONTRACTS AWARDED

●**Calif., San Francisco**—Dpt. P. Wks., City Hall, North Point Sludge Treatment Plant, to MacDonald, Young & Nelson 351 California St. and Morrison-Knudsen Co., 810 Title Guarantee Bldg., Los Angeles, **$4,486,000.** CD 7/14.

Conn., Bristol—City, D. J. Donovan, supt. of P. Wks., City Hall, trunk sewer, Contr. 7, West Washington St., to Fred Petrossi, 98 Mountain St., West Hartford, **$101,274.** Bids 7/26. CD 7/20.

Ill., Chicago—Sanitary Dist. of Chicago, 910 S. Michigan St., Zone 5, sludge disposal structure, blower and pump house, 51 Ave. and Sanitary Channel, West Southwest Sewage Treatment Plant, Stickney, to James McHugh Constr Co., 6449 S. Park Ave., Zone 37, **$725,885.** Bids 8/11. Awarded 8/21. CD 8/17.

Ind., Richmond—Bd. P. Wks., City Hall, sewage treatment plant to Weikel Constr. Co., 1150 Fairfield St., Fort Wayne, **$884,245.** Est. $800,000. Bids 7/22. Awarded 8/24. CD 7/28, under LB.

Ont., Scarborough—Twp. of Scarborough, sewers, Contr. F, to Sam Consentino & Co., 77 Ritchie, **$61,575**; Contr. G, to Scott-Jackson Constr. Co. Ltd., 7 Evans St., Etobicoke, **$56,210.** E. M. Baird, 2001 Eglinton Ave., Toronto, engr. Bids 3/28. CD 3/9.

BRIDGES

BIDS ASKED

September 13

Minn., Hallock—Kittson Co. A. P. Lofgren, aud., Hallock, 3 beam span, 151 ft. bridge No. 6651, over Two Rivers, S. P. 35-502-07 (SAR 3), Minn. Proj. S 124 (2). $50,000. Plans deposit $2.15. J. S. Schmit, co. engr.

September 14

†**Tennessee** — Bureau Pub. Roads, General Services Admin., 1st. Natl. Bank Bldg., Florence, Ala.,

Wayne Co.—2 rein.-con. bridges, Proj. 1H4-1H5, Natchez Trace Parkway. Plans deposit $10

LOW BIDDERS

●**New York**—State Dpt. Pub. Wks., Albany, Aug. 24, construct 2 grade separation structures in village of Lyons carrying relocated Geneva St. (Route 14) over West Shore and New York Central R. R.; incl. 57 ft. span I-beam bridge over West Shore R. R.; 5 span 370 ft. long I-beam structure over New York Central R R., 0.67 mi. c. conc. and 0.28 mi. b. conc. on Geneva St. and access streets, Wayne Co. from Lane Constr Corp., 37 Colony St., Cohoes, **$908,303.** Est. $958,000.

Construct 3 grade separation structures on Ontario Thruway; incl. 4 span 200 ft. I-beam bridge carrying Genesee St. over the Thruway; 4 span, 220 ft. I-beam bridge carrying relocated Walden Ave. over the Thruway; 4 span 246 ft I-beam bridge carrying the Thruway over the New York Central R. R.; b conc. 0.41 mi Erie Co. from McLain Constr. Corp., 275 Maryville Ave., Kenmore, **$864,054.** Est. $1,137,000. CD 8/4

British Columbia—Province of British Columbia, Parliament Bldgs., Victoria, Aug 22, substructure for Michel Mouth, Old Town and Loop bridges, over Michel Creek, Fernie Dist., from Dawson Bros. Hall Unit, 775 Clark Dr., Vancouver, **$73,547.** CD 8/12.

Tex., San Antonio—Bexar Co., Courthouse, July 22, timber and concrete bridge, Precinct 1 from Rogers & Stewart, 1407 W. Laurel St., **$55,190.** CD 7/8.

CONTRACTS AWARDED

Maine—State Hy Dpt., Augusta, Ferry Hill Bridge, Orono, F. A. P. Fl 53 (3), to Ellis C. Snodgrass Inc., 465 Congress St., Portland, **$386,807*****Village Bridge, Burnham, Waldo Co., to P. E. Susi & Co., Pittsfield, **$62,758.** Bids 8/24. CD 8/17.

Michigan—State Hy Dpt., Lansing, bridge at Port Huron, St. Clair Co., to Walter Tolbe Co., Gier St., Lansing, **$628,716.** Bids 6/23. Awarded 7/8. CD 7/14, under LB

†**Texas**—U. S. Eng., 606 Santa Fe Bldg., Galveston, rein.-con. substructures for Towash and Steeles Creeks and Brazos River Bridge, M. K. T. Ry track relocation proj., Inv. No. Eng-41-243-49-303 to Massman Constr Co., 71 Ry-Bass, Kansas City, Mo., **$680,393.** Bids 7/14. CD 7/19, under LB.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
● Project of $1,000,000 or over.
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

STREETS AND ROADS

BIDS ASKED

September 13

N. Y., Brooklyn — New York City Housing Auth., 63 Park Row, New York, Zone 7, c. conc. paving and concrete curbs at Red Hook Houses, Proj. NY 5-1.

N. Y., Long Island City — New York City Housing Auth., 63 Park Row, New York, Zone 7, c. conc. paving for walks at Queensbridge Houses, Proj. NY 5-2. Queens Boro.

September 16

†**New Hampshire**—Pub. Roads Admin., 915 Capitol St., Concord,

Grafton Co.—4.208 mi. New Hampshire Forest Hy. Proj. No. 8-D. Plans deposit $10. CD 6/7, under LB.

September 20

Del., Wilmington—Pres. Levy Court of New Castle Co., Public Bldg.,

New Castle Co.—N. Bellevue Manor, Brandywine Hundred Contr. SD-21 A.

Wilmington Manor, New Castle Hundred, Contr. SD-22.

Wilmington Manor, New Castle Hundred, Contr. SD-24.

Lyndalia, Christiana Hundred, Contr. SD-25. Plans deposit $2. John L. Cahalan, co. engr.

Bids Asked

Tex., Baytown — Baytown Constr. Co., c/o B. F. Sturman, Sterling Bldg., Houston, street constr. and asph. paving. **$60,000.**

LOW BIDDERS

California—State Div. Hys., Sacramento, Aug. 24, cement-treated portions existing surf. plant mix surf. 10.6 mi. between Chambers Ranch and Alturas, Modoc Co., from Clements & Co., Box 277, Hayward, **$252,970**; grading 2.3 mi. between north fork of American River and 2.3 mi. easterly Placer Co., from J. P. Brennan, 1343 Butte St., Redding and M. W. Brown, Box 222, Redding **$225,310.** CD 8/3.

Calif., Los Angeles—Bd. Supervs., Los Angeles Co., 501 Hall of Records, Aug. 23 impvt. 4,000 ft. Rosecrans Ave., Temple St. to Atlantic Ave., from M. S. Mecham, 10861 Drury Lane, Lynwood, **$94,302.** CD 8/3.

Colorado—State Hy. Dpt., Denver, grading, structures, 3.979 mi., State Hy. 83, between Franktown and Colorado Springs, Douglas Co., from Herron & Strong, Plateville, **$85,261,** Est. $109,018.

Colorado—State Hy. Dpt., Denver, Aug. 23, 8.504 mi. State Hy. 10 between La Junta and Colo. Proj. S-0012 (1), Otero Co., 4.232 mi. S State Hy. 71, between Rocky Ford and Hawley, Colo. Proj. S-0023 (4), Otero Co., from Floyd Haake, Santa Fe, N. M., **$57,774,** Est. $67,003; oil processing 9.076 mi. State Hy. 2, between Steamboat Spring and Craig, Colo. Proj. F 005-2 (4), Routt Co., from Peter Kiewit Sons Co., 1950 S. University St., Denver, **$59,492.** Est. $55,541. CD 8/15.

Ill., Springfield—City, City Hall, Aug. 23, paving Ash St., from Spring to MacArthur Sts., from Sangamo Constr. Co., 700 N. MacArthur Blvd., **$128,344.** Est. $138,000. CD 9/2/43.

Maryland—State Hy. Dpt., Baltimore, Aug. 23, b. conc. 4.69 mi. Rts. 305, 18, 606 and 304, Centreville, Contr. Q 232-215, Queen Annes Co., from Eastern Highways Corp., Belle Grove Rd., Brooklyn, Baltimore, **$72,918;** surf. 0.6 mi. paving, approx. 1.25 mi. north of Easton on State Rt. 33, extend. northeasterly via relocation to U. S. Rt. 50, Contr. T 118-2-215, Talbot Co., from H. Lay Phillips & Co., Salisbury, **$99,336.** CD 8/17.

Massachusetts—Commonwealth of Massachusetts, Dpt. P. Wks., 100 Nashua St., Boston, Aug. 16, highway work, new location Worcester, from A. Bonavita & Sons, 128 Wilcox St., Springfield, **$240,920.** CD 8/11.

Massachusetts—Commonwealth of Massachusetts, Dpt. P. Wks., 100 Nashua St., Boston, Aug. 16, highway, Barnstable, from Campanella & Cardi Constr. Co., 780 Jefferson Blvd., Hillsgrove R. I., **$832,250.** CD 8/16.

Mass., Worcester—City, P. Wks. Dpt., City Hall, Aug. 22, approx. 4,744 ft. street, concrete curb, from B. N. T. Sand & Gravel Co., 32 Wilson St., **$78,543.** CD 8/11.

●**New York**—State Dpt. Pub. Wks., Albany, Aug. 24, b. conc. wid'n. and resurf. 1.99 mi. Route 30, Fulton Co., from Hudson River Constr. Co., Inc., 75 State St., Albany, **$58,989.** Est. $71,000***reconstruct 1.47 mi. Route 31; 1.04 mi. c. conc. paving; 4.43 mi. b. conc.; 490 ft. steel bridge, Seneca and Cayuga Counties from D. W. Winkelman Co., Inc., Hoffernan Bldg., Syracuse, **$649,529.** Est. $704,000***reconstruct with b. conc. 0.84 mi. Hamilton St. (Route 20) in city of Geneva, etc., Ontario Co. from Mohawk Paving Co., Inc., Geneva, **$357,099.** Est. $379,000***reconstruct 1.79 mi. Main St., city of Canandaigua from E. Lake Rd. to Buffalo St.; b. conc. arteries 1.29 mi.; b. conc. paving 0.5 mi., Ontario Co., from Lane Constr. Co., 37 Colony St., Meriden, Conn., **$810,763.** Est. $933,000.

reconstruct Route 96, north of village of Manchester with c. conc. paving; incl. 2 span I-beam grade separation structure 182 ft. over the Lehigh Valley R.R.; 2 span 158 ft. I-beam bridge over Canandaigua Outlet, Ontario Co., from Baughman & Blair, Inc., Fischers St., Rochester, **$656,371.** Est. $822,000***c. conc. 0.34 mi. on access roads between Route 82 and the Taconic State Parkway, etc., Dutchess Co. from John Arborio, Inc., W. Cedar St., Poughkeepsie, **$62,196.** Est. $72,000.

bit. tr. gravel pavement 3.08 mi. County Rd. No. 55 from Route 17 at Smith's Corners southerly to New Jersey State Line, etc., Orange Co., from V. J. Costanzi, Inc., Woodcliff Park, Poughkeepsie, **$135,417.** Est. $179,000***construct 0.51 mi. Bronx River Parkway (southerly exten.) from Westchester county line southerly 700 ft. south of E. 233 St.; incl. twin span 125 ft. long rigid frame bridge, 63 ft. span concrete arch bridge over Bronx River; 94 ft. span concrete arch grade separation structure at E. 233 St., etc., Bronx Co. from Charles F. Vachris, Inc., 827 Remsen Ave., Brooklyn, **$2,280,452.** Est. $2,420,000.

reconstruct 11.02 mi. Route 25 (Jericho Turnpike) from intersection with Route 110 at S. Huntington easterly to 200 ft. west of Long Island R.R. crossing at Smithtown, incl. c. conc. paving 10.08 mi. wid'n.; 0.73 mi. c. conc. paving on new location, etc., Suffolk Co. from Elino Corp., Westerleigh Station Beach, **$694,916.** Est. $933,000***construct traffic interchange facilities between Southern State Parkway and Howells Rd.; incl. 2 span 73 ft. concrete rigid frame bridge carrying Howells Rd. over the parkway; 45 ft. concrete rigid frame bridge carrying Howells Rd. over an access road; 0.87 mi. c. conc.; 0.41 mi. b. conc., Suffolk Co. from Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, **$477,261.** Est. $562,000. CD 8/4.

●**Pennsylvania** — Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg, **Aug. 24,** grading, drainage, structure, paving approx. 3.24 mi. Sec. 22 B, Philadelphia Ext. Extens. of Pennsylvania Turnpike from approx 897 ft. west of L. R. 129 in Steelton and Highspire Boros, easterly for 17,101 ft. to approx. 1,162 ft. west of L. R. 615, in Lower Swatara Twp., Dauphin Co. from Frank O. Patterson Constr. Co., 10 St., Monongahela, **$1,849,199.** CD 8/4.

Pa., Phila.—Dpt. Pub. Wks., City Hall Annex, Aug. 19, from Eastern Asphalt Co., Packard Bldg., paving Schedules B-4, B-6, B-5, B-9, **$74,871;** paving, Schedule D, **$50,869;** paving Schedules E-7 and E-2, $51,842***from General Asphalt Paving Co., 6851 Rising Sun Ave., paving Schedule E-3, **$186,768***from Union Paving Co., Broad and Stiles Sts., paving Schedule F-2, **$53,174***from State Paving & Constr. Co., 1924 Arch St., **$74,562***from Garlow Constr. Co., 2948 E. Venango St., paving Schedule H, **$388,720.** CD 8/10.

Tex., Pecos—City, cancelled bids to have been opened Aug. 31, 40 blocks asph. street paving. **$100,000.** Will re-advertise. CD 8/17.

CONTRACTS AWARDED

Maine—State Hy. Dpt., Augusta, to Thomas DiSenso, Calais, bit. grav. 2.955 mi. Stacyville and Patten, F. A. S. P. S 85 (1), **$84,653;** bit. grav. 3.527 mi. Freedom and Knox, F. A. S. P. S 87 (1), **$91,934;** bit. grav. 3.588 mi. "150" Parkman, F. A. S. P. S 275 (2), **$58,108,** Grand total $234,695. Bids 8/24. CD 8/15.

Maryland—State Hy. Dpt., Baltimore, grading, drainage, surf. 3.788 mi. highway, Contr. F 476-1-615 Frederick Co., to Edgie Russell, Frederick, **$773,383.** Bids 8/9. CD 8/12, under LB.

Mississippi—State Hy. Dpt., Jackson, grading, drainage, culverts, box bridge, on 3.862 mi. County Hy., between Monticello and Wanilla, Lawrence Co., F. A. S. P. S-44; grading, drainage, culverts, bridges and grav. surf. 7.655 mi. County Hy. between Starkville and Roberson Rd., Oktibbeha Co., F. A. S. P. S 288 (1), to Hunt Bros., Inc., Box 1, Tuskegee, Ala., **$82,726.** Est. $72,000 and **$79,060.** Est. $70,000 respectively.

grading, drainage, culverts, bridges, grav. surf. course 2.138 mi. Hy. 9 and Hardin Rd., Calhoun Co., F. A. S. P. S 197 (1), to Newsom Bros., Columbia, **$110,601.** Est. $105,000***grading, drainage, structures, culverts, grav. surf. course, 5.919 mi. County Rds. between Webb and Brazil, Tallahatchie Co., F. A. S. P. S 292 (1), to Hyde Constr. Co., Hy. 80 W., Jackson **$66,448.** Est. $45,000. Grand total $235,835. Bids 8/23. Awarded 8/23. CD 8/17.

New Jersey—State Hy. Dpt., Trenton, channelized intersection at Communipaw Ave. and Rt. 1, 0.3 mi. Route 25 (1947), Sect. 37 Jersey City, Hudson Co., to A. J. Sasselli & Son, Inc., 121 Clifton Pl., Jersey City, **$184,765.** Bids 8/25, awarded 8/25. CD 8/5.

●**New York** — Bureau Contracts & Accounts, Albany, reconstruct short sect. of Route 11 and LeMoyne Ave. incl. traffic interchange facilities, in vicinity of the railways in city of Syracuse, Onondaga Co. to Arute Bros., New Britain, Conn., **$1,256,596.** Bids 6/13. CD 7/15, under LB.

●**Ohio**—State Hy. Dpt., T. J. Kauer, Dir., Columbus, Zone 15, stabil. base, bit. surf. tr. 11.547 mi. S.R. 212, Carroll and Tuscarawas Counties to Edgar Spring, Inc., Box 177, New Phila., **$62,493.** Est. $82,700***b. conc. paving, wid'n. and resurf. 8.789 mi. U. S. R. 68, Hardin Co. to Parkersburg Excavating Co., Parkersburg, W. Va., and L. P. Cavett, Lockland, **$592,618.** Est. $659,800***macad.-b. conc. 2.235 mi., incl. structure repair, Bridge No. WI-20A-56, U. S. R. 2-A, Williams Co. to S. E. Johnson Co., P. O. Box 29, Maumee, **$144,917.** Est. $163,000***b. conc. wid'n. and resurf. 4.386 mi., construct Bridge No. GR 72-189 and Bridge No. GR-72-190, S.R. 72, Clarke and Greene Counties to Manix Bros., Greenville, **$257,931.** Est. $294,800***bit. tr. 7.89 mi. U. S. R. 22, Harrison Co. to D. C. McCurdy Co., South Broadway, Martins Ferry, **$63,201.** Est. $70,700***b. conc. resurf. 7.923 mi. S.R. 18, Huron Co. to Ohio Road Imprv. Co., Chamber Commerce Bldg., Columbus, **$94,009.** Est. $115,200***bit. road mix on macad. paving 1.865 mi., construct bridge, No. ER-99-38, S.R. 99, Erie Co. to Dandrea & Nardini Constr. Co., 751 Broadway, Lorain, **$86,160.** Est. $100,900. Grand total $1,301,329. Bids 8/16. CD 8/5.

EARTHWORK, WATERWAYS

BIDS ASKED

September 20

†**Connecticut** — U. S. Eng., Army Base, Boston, 10, Mass., imprvt. dredging at New Haven Harbor, Serial No. CIVENG-10-1016-50-9. CD 7/14.

†**Mississippi**—U. S. Eng., P. O. Box 60, Vicksburg, approx. 250,000 cu. yd. earthwork, east bank Mississippi River, Serial No. CIVENG-22-052-50-32.

September 21

†**Rhode Island**—U. S. Eng., Army Base, Boston 10, Mass., repairing riprap breakwater at Harbor of Refuge, Block Island. Serial No. CIVENG-19-016-50-13.

September 22

†**Idaho**—Bureau Reclamation, Dpt. Interior, Boise, Willow Creek and four relift pumping plants, pipe lines, laterals, Payette Div., Boise Proj., approx. 4 mi. northeast and 4 mi. northwest of Middleton, Spec. R1-53.

†**New Hampshire**—U. S. Eng., Army Base, Boston, 10, Mass., maintenance dredging at the Weirs Channel, Lake Winnepesaukee, Serial No. CIVENG-19-016-50-12.

September 23

†**Pennsylvania**—U. S. Eng., P. O. Box 1715, Baltimore 3, Md., replacement of channel wall, Codorus Creek, York. Serial No. CIVENG-18-020-50-4. CD 8/25.

About September 27

†**Virginia**—U. S. Eng., foot of Front St., Norfolk, clearing Parcel "A", Buggs Island Reservoir Proj. Roanoke River, Mecklenburg Co. Serial No. CIVENG-44-110-50-20.

September 28

†**Massachusetts** — U. S. Eng., Army Base, Boston, Zone 10, repairs to stone breakwater, Hyannis Harbor, Barnstable Co., Serial No. CIVENG-19-016-50-14.

September 30

†**Nebraska**—Bureau Reclamation, Dpt. Interior, Arapahoe, construct earthwork, canal lining, and structures, station 676 plus 00 to station 1012 plus 52, Cambridge Canal and earthwork and structures for drains and channel changes, Cambridge Unit, Frenchman-Cambridge Div., Missouri River Basin Proj. Spec. 2775.

LOW BIDDERS

†**California**—U. S. Eng., 180 New Montgomery St., San Francisco, cancelled bids to have been opened Aug. 30, dredging in Petaluma Creek, Spec. 04-202-50-26.

Mass., Dennis—Commonwealth of Massachusetts, Dpt. P. Wks., 100 Nashua St., Boston, stone jetty, Sesuit River, from John Gallo Constr. Co., Sagamore, **$31,460.**

†**Missouri**—U. S. Eng., 826 U. S. Court House and Custom House, 1114 Market St., St. Louis, Zone 1, Aug. 24, timber pile, clump dikes and bank protection Mississippi River, 4.340 lin. ft. piling dikes at Power Island, Miles 33.0 to 40.0 above mouth of Ohio River, and Schenimann Miles 47.0 to 65.00, and 26,500 lin. ft. protection at Liberty, Miles 96.0 to 103.0 Serial No. CIVENG 23-065-50-9, from Massman Constr. Co., 20 W. 9 St., Kansas City, Mo., **$224,003** and **$125,195** respectively. CD 8/16.

New York—State Dpt. Pub. Wks., Albany, Aug. 24, construct hydraulic fill for beach protection on the Atlantic Ocean from Clayton Ave. in Village of East Atlantic Beach to Maryland Ave. in city of Long Beach, Nassau Co. from Arundel Corp., Pier 2, Pratt St., Baltimore, Md., **$77,280.** Est. $90,000. CD 8/5.

†**Oregon**—U. S. Eng., 19 Poplar St., Walla Walla, Wash., Aug. 23, furnish, install miter gate and appurtenances, operating machinery, stop logs and stop-log lifting beams for navigation lock at McNary Dam on Columbia River. CIVENG-45-164-50-4 from Consolidated Western Steel Corp., 5700 S. Eastern Ave., Los Angeles, Calif., **$641,280.** CD 7/14.

CONTRACTS AWARDED

●†**California**—Bureau Reclamation, Dpt. Interior, Tracy, earthwork, concrete lining, structures, portion of Delta-Mendota Canal, from 6 mi. west of Volta to 7 mi. S.W. of South Dos Palos, Central Valley Proj., Spec. 2732, to Morrison Knudsen Co., 1810 Title Guarantee Bldg., Los Angeles and M. H. Hasler, Box 387, Santa Ana, **$4,275,873.** CD 8/24, under LB.

●†**Utah**—Bureau Reclamation, Dpt. Interior, Provo, construct 3.7 mi. Duchesne-Provo River diversion tunnel near Provo. Spec. 2745 to Grafe-Callahan Constr. Co., 714 W. Olympic St., Los Angeles, Calif., **$4,379,961.** Bids 8/17. CD 8/23, under LB.

AIRPORTS AND AIRBASES

BIDS ASKED

About September 13

†Ill., Belleville — FLIGHT HAZARD REMOVAL—U. S. Eng., 520 Merchandise Mart, Chicago, Zone 54, removal flight hazards etc., Scott Air Force Base, Serial No. Eng., 11-032-50-5. Extended date. CD 8/9.

September 14

†S. D., Rapid City — WASHING TREATMENT PLANT — U. S. Eng., 1709 Jackson St., Omaha 2, Neb., plane washing treatment plant, Rapid City Air Force Base, Weaver, Serial No. 25-066-50-2. CD 8/8.

Tex., Dallas — RUNWAY — City, City Hall, Main and Harwood Sts., extens. of north-south runay at Hensley Field, 700,000 cu. yds. fill; 38,333 sq. yds. 8 in. rein.-con. paving, etc. $475,000. Extended date. Chappell, Stokes, Brenneke, 312 Burt Bldg., engrs. CD 8/16.

CONTRACTS AWARDED

†O., Cleveland — PROPULSION SCIENCE OPERATIONS BLDG. — National Advisory Committee for Aeronautics, Brook Park Rd., Aus. 17, 2 story bsmnt., 90x47x170 ft. brick and block propulsion science operations bldg., to Sam. W. Emerson Co., 1836 Euclid Ave., **$514,900.** CD 8/3.

PUBLIC BUILDINGS

BIDS ASKED

September 12

†Colorado — SUBSTATIONS — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, substations for Windsor, Woodrow and Wray Substations, Colorado-Big Thompson Proj., Spec. R7-70 (Region 7). L. N. McClellan, ch. engr.

N. S., Lunenburg—JAIL—S. A. Randall, clk., c/o Dist. of Lunenburg, county jail, approx. $250,000. Plans deposit $50. C. D. Davison & Co., 2 Prince St., Halifax. archt.

September 13

Ia., La Porte—POWER PLANT—City, power plant imprvs., incl. diesel generating unit, power plant addn., switchboard extens., mis. electrical equip. and wiring. Approx. $75,000. Stanley Eng. Co., Hershey Bldg., Muscatine, engr.

Mass., Agawam — SCHOOL — Town, supt. schools, High school, 2 story brick Center school addn., Approx. $250,000. Plans deposit $20. Paul R. Johnson, 66 Vernon St., Springfield, archt. CD 6/30.

September 14

Ala., Fort Payne—COURTHOUSE—De Kalb Co., Ft. Payne, courthouse. Extended date. Sherlock, Smith & Adams, 301 Washington Ave., Montgomery, archts. CD 8/10.

●Ill., Lyons—Lyons Twp. School Dist. 204, 100 S. Brainerd St., 2 story, 100x175 ft. brick, steel, concrete, stone athletic bldg., 3 story 60x120 ft. brick, steel, concrete, stone music bldg., Lyons Twp. High School. **$1,000,000.** J. C. Llewellyn, 38 S. Dearborn St., Chicago, Zone 3, archts. CD 4/11/46.

Mass., Brookline—HOUSING—Town, Ben. A. Trustman, chn., Brookline Housing Auth., garden apartments, High and Chestnut Sts., State Aided Proj. Brookline 200-1. Approx. $250,000. Plans deposit $100. Richmond & Goldberg, 16 Arlington St., Boston, archts. CD 10/14.

Mass., Methuen — HOUSING — Town, of Methuen Housing Auth., Town Hall, 60 unit veterans housing project, 200-1. Approx. $600,-000. Plans deposit $25. Edward Sears Read & Assoc., 177 State St., Boston, archts. CD 12/9.

September 15

Mass., Marshfield — SCHOOL — Town, High School, 2 story, brick elementary school, Approx. $400,000. Plans deposit $25. Kilham, Hopkins, Greeley & Brodie, 9 Arlington St., Boston, archts. CD 5/26.

Neb., Hastings—PLANT—Bd. Pub. Wks., Hastings, water and light plant, equip., etc. $285,500. Black & Veatch, 4706 Broadway, Kansas City, Mo., engrs.

N. Y., Forest Hills—SCHOOL—Supt. School Buildings, Design & Constr., 49 Flatbush Ave. exten., Brooklyn, Zone 1, general constr.; plumbing and drainage; heating and ventilating; electrical and lighting fixtures for P. S. 165, 150 St. between 70 Rd. and 71 Ave. Plans deposit $25 general constr.; $8, plumbing, drainage, heating and ventilating, $11 electrical and lighting fixtures.

Pa., Muncy—INDUSTRIES BUILDING—Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, general constr., heating and ventilating, plumbing and drainage and electrical for prison industries bldg., State Industrial Home for Women. Plans deposit $10 general, $2.50 others. Clayton J. Lappley, Riverview Manor, Harrisburg, archt., W. B. Jefferis, c/o owner, ch. engr. CD 3/4/48.

Pa., West View — STORES, OFFICES — Municipal Auth., 414 Perry Hy., 2 story 60x280 ft. brick and tile, steel frame stores and offices, Perry Hy. $250,000. Sorber & Hoone, 711, First Natl. Bank, Greensburg, archts.

Ont., Toronto — SCHOOL — J. Dillon, bus. admin., c/o Toronto & Suburban Separate School Bd., 477 Jarvis St., Zone 5, 2 story bsmnt., St. Brigids School Addn., Woodmount Ave., Approx. $250,000. Plans deposit $25. Broman & Whate, 906 Yonge St., archts.

September 15

†N. M., Alamogordo — FAMILY QUARTERS —U. S. Eng., P. O. Box 1538, Albuquerque, 65 single type 27x47 ft. frame and stucco, approx. 70,000 sq. ft. alternate masonry family quarters. (Holloman Air Force Base A-91C), Serial No. Eng-29-005-50-12. $650,000. CD 8/11.

September 16

●Mass., Holyoke—VETERANS HOME—Dpt. P. Health Office, City Hall Annex, Chicopee, 5 story, bsmnt., sub. bsmnt., brick, rein.-con. veterans home, Cherry Hill, for Administration & Finance Dpt., State House, Boston. **$1,-800,000.** William Nelson Jacobs, 460 Park Sq. Bldg., Boston, archt. CD 1/6.

September 17

N. D., Dickinson — SCHOOL — Bd. Educ., Dickinson, grade school. $300,000. Ritterbush Bros., Bismarck, archts. CD 6/16.

September 19

Conn., Bristol—SCHOOL ADDN.—City, J. P. O'Connell, chn. Bd. Educ., Bristol, brick, steel Mary A. Gallen School addn., $250,000. Harold A. Hayden, 175 Main St., archt. CD 2/25.

Pa., Black Lick—SCHOOL—School Dist. of Burrell Twp., Black Lick, 1 story L shaped, irregular, brick grade school near here. $250,000. Tillman Scheeren Jr., Boartz Bldg., Kittanning, archt.

September 20

California —ARMORIES—State Div. Architecture, P. Wks. Bldg., Sacramento, 11,000 sq. ft. Type A armory at Culver City and 12,500 sq. ft. Type B armory at Highland Park. Plans deposit $25. Anson Boyd, state archt.

Ga., Milledgeville—HOSPITAL ADDN.—State Dpt. Welfare, State Office Bldg., Atlanta, state hospital addn., $400,000. Gregson & Ellis, Mortgage Guarantee Bldg., Atlanta, archts. Extended date. CD 8/23.

September 20

N. Y., New York—HOUSING—New York City Housing Auth., 63 Park Row, Zone 7, foundations and general constr.; heating and ventilating; electrical; plumbing for Sect. I, Bldgs. 5, 6, 7 and 8 of Melrose Houses, bounded by E. 153 St., Morris Ave., E. 156 St., and an irregular line approximately midway between Morris and Courtland Aves., Bronx Boro. Plans deposit $75. CD 6/3/48.

●N. Y., Schenectady — ADMINISTRATION BLDG.—U. S. Atomic Energy Comn., c/o General Electric Co., River Rd., administration and security bldg., fire station, equip. maintenance shop, carpenter and machine shop, warehouse, completing access road, clearing, rough grading, drainage, site roads and pavement, steam and electrical distr. sys., sewage collection, sewage disposal and water distr. systems, water tank, at West Milton Inv. AE 50-SCH-1. CD 8/19.

●N. C., Smithfield—HOSPITAL—Johnston Memorial Hospital, Carl Worley, chn. Courthouse, Smithfield, 100 bed hospital. $1,200,000. George Watts Carr, Corcoran Bldg., Durham, archt. CD 2/25.

Ore., Salem—OFFICE—State Hy. Comn., State Office Bldg., 5 story bsmnt., office $500,000. Whitehouse, Church, Newberry & Roehr, Buildings Exchange Bldg., Portland, archts. CD 9/18/47.

Tex., Arlington—SCIENCE—A & M College of Texas, College Station, 3 story 75x100 ft. masonry science bldg., 2 freight elevators. $300,000. Plans deposit $50. Carlton W. Adams, 228 Adams Avenue Bldg., c/o A & M College, College Station, archt. CD 10/6/47.

September 21

La., Thibodaux — SCHOOLS — Lafourche Parish School Bd. Thibodaux, Thibodaux High School and gymnasium, Raceland Senior High School and gymnasium, Raceland. Plans deposit $20 each; C. M. Washington colored high School, Raceland colored school Raceland. Plans deposit $10 each. Favrot & Reed, 402 Nola Bldg., New Orleans, archt. CD 6/10.

B. C., Vancouver — UNIVERSITY BLDG. — Minister P. Wks., Province of British Columbia, Parliament Bldgs., Victoria, 4 story 51x184 ft. wings V-shaped Preventive Medicine Bldg., University of British Columbia. $700,000. Plans deposit $15. Sharp & Thompson, 1553 Robson St., Vancouver, archt. CD 1/28.

September 22

●N. C., Chapel Hill — LIBRARY—at office W. D. Carmichael, comptroller, Chapel Hill, library addn. for University of North Carolina, Chapel Hill, $1,500,000. Raymond Weeks, 504 Snow Bldg., Durham, archt. CD 12/23. **under LB.**

September 23

†Colorado — POWER PLANTS — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., completing Estes and Marys Lake Power Plants, Colorado-Big Thompson Proj., Spec. 2767. L. N. McClellan, ch. engr. adv. ENR 8/25.

Colo., Colorado Springs—COOLING TOWER —At Office, city mgr., City, Colorado Springs, one 14,000 gpm induced draft cooling tower at municipal electric plant. Lutz & May, 819 Finance Bldg., Kansas City, 6, Mo., consult. engrs.

●Tex., Lubbock—ADMINISTRATION—Texas Technological College c/o bus. mgr., Lubbock, brick, steel, concrete, tile administration bldg. addn. Approx. $500,000-$1,000,000. Plans deposit $30. Wyatt C. Hedrick, 1005 First Natl. Bank Bldg., Fort Worth, archt. CD 5/19.

About September 23

†Ga., Augusta — DIET KITCHENS — U. S. Eng., Post Office Bldg., Savannah, diet kitchens alterations, Oliver General Hospital.

September 27

†California —HOUSES, etc.— Bureau Reclamation, Dpt. Interior, Redding, Calif., completing lower vista house, powerhouse addit. and elevator lobbies at Shasta Dam, about 10 mi. north of Redding, Central Valley Proj., Spec. 2769. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

September 27

†Calif., Los Angeles — TERMINAL — Pub. Bldgs. Admin., General Services Admin., F. St. between 18 and 19 Sts. N. W., Wash., D. C., addnl. story to U. S. Post Office Terminal Annex. Extended date. Plans deposit $10; adv ENR 8/25. CD 8/3.

September 28

Tenn., Memphis—CANCER LABORATORY —At office Dr. O. W. Hyman, vice pres., 874 Union St., 3 story rein.-con., brick faced, Indiana limestone trim cancer research laboratory, on Dunlap St. at corner of Madison. $491,600 for University of Tennessee. Walk C. Jones-Walk C. Jones, Jr., Walk C. Jones-Walk C. Jones, Jr., 1215 Poplar Ave., archts.

September 29

●Tex., Denton — DORMITORY, etc. — Texas State College for Women, c/o W. M. Lawless, bus. mgr., Denton, 3 story dormitory and 3 story economics bldg., brick, steel, concrete constr. $700,000 each. Plans deposit $25 each. Preston M. Geren, N. P. Anderson Bldg., Fort Worth, archt. CD 7/21.

About October 1

Kan., Liberal—SCHOOL—Bd. Educ., R. B. Mahmon, secy., high school addn., incl. auditorium and gymnasium, $350,000; h.gh school addn., $509,000. Received no bids August 10. CD 6/10.

October 5

Wis., Chippewa Falls—BOILER PLANT, etc.—State Dpt. Public Welfare, Madison, new boiler plant, equip., Northern Colony and Training School. Plans deposit $50. Gates, Moe, Weiss & Papenthien, 611 N. Broadway, Milwaukee, Zone 2, engrs. CD 3/17.

October 25

●†N. Y., Syracuse — HOSPITAL—Veterans Admin., Vermont Ave., between H and I Sts., N. W. Wash 25, D. C., (1) general constr. incl. roads, walks, grading, drainage, mechanical work, outside distr. sys., and wrecking and removing certain structures; (II) electric elevators and dumbwaiters; (III) refrigeration equip. for Veterans Hospital, approx. 4,957,000 cu. ft. Hospital Bldg. No. 1; approx 88,000 cu. ft., Apartment Bldg. No. 2; approx. 35,000 cu. ft. Attendants Quarters Bldg. No. 3; approx. 75 ft. Steel Flag Pole No. 6; one underground domestic water reservoir No. 7, approx. 2,000 cu. ft.; approx. 700 cu. ft. underground brine storage Basin No. 8, structural steel frame, brick faced with stone trim and backed with hollow tile, concrete fdns. Spec. 9201B. CD 1/29/47.

On or About November 29

●†Conn., New Haven — HOSPITAL — U. S. Engr. Bldg., 21, U. S. Navy Drydock, South Boston, Mass., 9 story GM hospital complete with chapel and assembly hall, 7 story TB hospital with chapel, auditorium, station garage and repair shop, 2 duplex quarters 1 car garage for managers office, etc., on 63 acre site between West Spring St. on south, Terrace Ave. on north and exten. along Campbell Ave., Serial No. Eng-19-016-50-5, for Veterans Admin., Vermont Ave. between H and I Sts. N. W., Wash. 25, D. C. CD 1/15.

LOW BIDDERS

Ind., Greenfield — HOSPITAL—Bd. Co. Comrs., J. Ward, & Bd. Hospital Trustees, Fletcher, Court House, Greenfield, Aug. 25, 3 story 42x178 ft. and 44x85 ft. brick county memorial hospital, from R. E. Schenck Co., 1538 N. Meridian St., Indianapolis. **$329,500.** Est. $600,000. CD 8/10.

●†Ia., Iowa City—U. S. Eng., Clock Tower Bldg., Rock Island, Ill., Aug. 18, general medical hospital, Veterans Admin., incl. main hospital, garage, laundry bldg., apartment bldg., appurtenant facilities, etc., 12 acre site south of U. S. 6, east of Woolf Ave. and North of Newton Rd., Serial No. Eng. 11-117-49-22, from Gus Newburg Constr. Co., 9 S. Clinton St., Chicago, Ill. **$6,597,000.** Est. $8,000,000. Elevators from Westinghouse Electric Corp., 506 N. Dearborn St., Chicago, Ill., **$289,380.** CD 6/17.

●†Md., Bethesda—CLINICAL BLDG.—Federal Wks. Admin. P. Bldgs. Admin., F St., between 18 and 19 Sts., N. W. Wash., 25, D. C., Aug. 23, superstructure, Clinical Center Bldg., No. 10, National Institute of Health Proj. 18-66**4**, from John McShain Inc., Lansdown **Ave.**, Phila., Pa., **$16,787,290.** Elevators from Otis Elevator Co., 810 18 St. N. W., Wash., 25, D. C., **$1,096,495.** CD 8/10.

La., Ruston — DORMITORIES—State Bd. Educ., Capitol Bldg., Baton Rouge, Aug. 25, mens dormitories, Louisiana Polytechnic Institute, from Tudor Constr Co. Alexandria, **$386,490.** CD 8/1.

Mass., Andover—HOUSING—Town, Andover, Housing Auth., Town House, Aug. 19, veterans housing proj. 20-1, Morton St., from Benoit Constr. Co , 7 Willow St., Lynn, **$549,-546.** CD 8/8.

Mass., Lynfield—SCHOOL—Town, Lynfield, Aug. 16, elementary school, Precinct 2, from Vara Constr. Inc., 718 Huntington Ave., Boston, **$294,000.** CD 7/19.

Mass., Winthrop—HOUSING—Town of Winthrop Housing Bd., Town Hall, Aug. 12, veterans housing proj. 200-1, Site Z, Douglas, Edward, Morton and Read Sts., from Walter L. Ritchie Co., 1 Salem St., Malden, **$486,-687;** Site B, Pleasant and Girdestone Sts., from Jefferson Constr. Co., 75 First St., Cambridge, **$231,198.** CD 8/8.

Mo., Chillicothe — SCHOOL—Bd. Educ., Chillicothe, Aug. 18, central grade school from George E. Baumann, 713 E. Austin St., Nevada, **$297,000.** J. W. Radotinsky, Commerce National Bank Bldg., Kansas City, Kan, archt., CD 5/11/48.

N. Y., Long Island City—HOUSE FDNS., etc.—New York City Housing Auth., 63 Park Row, New York, Zone 7, Aug. 23, foundations, appurtenances for Sect. II of Ravenswood Houses, Proj. NYC-20, incl. comfort station and bldgs. numbered 18 to 31 inclusive located in area bounded by 34 Ave., 21 St. and 36 Ave. and 12 St. from John Rosenblum, Inc., 282 Stanton St., New York, **$888,000.** CD 7/18.

N. Y., New York—CENTRAL PLANT—Dpt. P. Wks., Municipal Bldg., Zone 7, Aug. 15, general constr., plumbing for power plant expans. phase D, Central Plant Building on Welfare Island from Glenco Builders, 180 E. 123 St., **$387,773.** CD 8/8.

N. C., Greensboro—HOME ECONOMICS—Woman's College, University of North Carolina, Greensboro, Aug. 26, 3 story 56x332 ft. home economics bldg., from Fowler-Jones Constr. Co., Reynolds Office Bldg., Winston-Salem, **$591,800.** CD 8/11.

N. D., Minot—PHYSICAL EDUCATION—State Bd. Higher Educ., Bismarck, rejected bids Aug. 16, physical educ. bldg., State Teachers College. Est. **$425,000.** CD 8/2.

O., Cincinnati—FIRE HOUSE—City, City Hall, 9 and Plum Sts., Aug. 9, fire house, etc. from Frank Messer & Son, Inc., 4612 Paddock Rt., **$342,700.** Est. $400,000. Fred Garber, Union Central Bldg., archt.

●O., Cincinnati—HOSPITAL—Hamilton Co., Courthouse, Aug. 12, 1 and 3 story bsmnt, 60x90x234 ft. irregular shape 350 bed county hospital (county home), 2 story bsmnt, 58x144 ft. power plant and laundry from Frank Messer & Sons Co., 4612 Paddock Rd., Approx. **$4,000,000.** Est. $3,941,331. CD 7/26.

●Alaska, Fairbanks—SCHOOL—School Bd. Fairbanks, Aug. 22, school from Peter Kiewit & Sons Co., and J. C. Boespflug Constr. Co., 1300 Aloha St., Seattle, Wash., **$2,141,999.** Manley & Mayer, Anchorage, archts.

Ont., Kingston—MEMORIAL COMMUNITY CENTER—C. C. Wyatt, clk., City Hall, Aug., 15 memorial community center, from T. A. Andre & Sons, 580 Brock St., Approx. **$659,165.** CD 8/1.

CONTRACTS AWARDED

●Ala., Florence—SCHOOL—City Bd. Educ., Florence, high school, to Daniel Constr. Co., 822 7 Ave. South, Birmingham, **$1,083,523.** Bids 8/23. CD 8/29, under LB.

Ala., Wenonah—SCHOOL—Alabama State Bd. Educ., Montgomery, trade school, to Daniel Constr. Co., 822 7 Ave. South Birmingham, **$504,035.** Bids 8/24. CD 8/8.

Calif., Alturas and Cedarville — HOSPITAL —Modoc Co., Courthouse, Alturas, 25 bed wood frame Alturas Hospital and 8 bed wood frame Cedarville Hospital, to Tawco Constr. Co., 420 Safford Ave., Fresno, **$649,600.** Bids 8/16. CD 8/23, under LB.

Calif., East Whittier — SCHOOL — East Whittier School Dist., East Whittier, 5 stucco schools, to The Valley Constr. Co., 257 W. Arrow Blvd., Fontana, **$500,000.** R. L. Warren, 8323 La Bahada St., Whittier, archt.

Conn., Greenwich—SCHOOL—Town, Bd. Educ., Greenwich, 2 story, bsmnt., brick, steel elementary school addn., Sound Beach Rd., Old Section, to Chimblo Brothers, 399 Post Rd., Greenwich, **$562,236.** Bids 6/30. CD 8/3, under LB.

Conn., New Haven—SCHOOL—City, Bd. Educ., New Haven, 1 story 220x350 ft. brick, steel, concrete elementary school, to Fusco-Amatruda Co., 50 Amity Rd., New Haven, **$598,700.** Bids 8/17. CD 8/2.

Conn., Westport — SCHOOL—Town, Wm. Vibas, chn. Bldg. Comm., school, 12 rooms, repairing existing bldg., Green Farms School to George Hickey, Inc., 13 Spring St., Stamford, **$517,890.** Bids 8/1. CD 8/17, under LB.

Ky., Covington — HOSPITAL—Covington Tuberculosis Sanitarium, Covington, tuberculosis sanitarium, driveways, etc., to Frank Messer & Sons, 4612 Paddock Rd., Cincinnati, O., **$478,737.** CD 1/28.

La., Bogalusa — HOSPITAL—State Div. Admin., Capitol Annex Baton Rouge, Washington-St. Tammany Charity Hospital Bldg., to Perrilliat Rickey Constr. Co., 1515 S. Saludo St., New Orleans, **$631,000.** Bids 8/18. Awarded 8/23. CD 8/23, under LB.

Mass., Hyannis — SCHOOL — Town, supt. schools, Main St., elementary school, Bearses Way, to J. L. Marshall & Sons Inc., 560 York Ave., Pawtucket, R. I., **$579,950.** Bids 8/11. Awarded 8/18. CD 8/16.

Mass., New Bedford—HOUSING—City of New Bedford, Housing Auth., housing proj., 200-3, Nash Rd. and Mount Pleasant Blvd., to E. Turgeon Constr. Co. Inc., 614 Turks Head Bldg., Providence, R. I., **$698,842.** Bids 8/19. Awarded 8/22. CD 8/1.

Minn., Minneapolis—SCHOOL—Bd. Educ., Minneapolis, general contract grade school, 33 Ave. N. E. and Ulysses St., to Knutson Constr. Co., 1103 Plymouth Bldg., **$581,600.** Bids 8/19. CD 8/25.

N. J., Burlington—SCHOOL—City, Burlington, Captain James Lawrence School, to John J. McShain, 832 Prospect St., Trenton, **$385,832.** Bids 8/22. CD 8/2.

●N. M., Albuquerque—TROOP HOUSING, etc.—U. S. Eng., Box 1538, troop housing and related facilities. Serial No. 29-005-49-99 to Haddock Engineers, Ltd., P. O. Box 1596, **$882,105.** Bids 7/6. CD 6/2.

●♦N. M., Los Alamos—BUILDINGS—U. S. Atomic Energy Comn., Los Alamos, 26 reinf.-con. bldgs., 4 mi. bit. roads, 2 mi. fencing, 1½ mi. rural distr. lines. Inv. No. 291-49-173 to Haddock Engineers Ltd., & Assoc., Santa Fe., **$1,559,600.** Est. $1,500,000. CD 6/21.

●N. M., Los Alamos—BUILDINGS, etc.—U. S. Atomic Energy Comn., Los Alamos, buildings and utilities, 9 masonry bldgs., roads, waterlines, gas sys., sanitary sewage sys., electrical distr. sys., 50,000 gal. elevated steel water tower to Haddock Engineers, Ltd. & Assoc., Santa Fe., **$670,000.** Est. $500,000-$750,000. Bids 6/13.

●N. Y., Long Island City—SCHOOL—Supt. School Bldgs., Design & Constr., 48 Flatbush Ave. exten., Brooklyn, Zone 1, general contract P. S. 171, 29 and 30, 14 and 21 sts., to Depot Constr. Co., 450 7 Ave., New York, Zone 1, **$1,546,000.** Bids 7/18. CD 7/21, under LB.

N. Y., New York—VENTILATION BLDG. —Port of New York Auth., 111 8 Ave., Zone 11, foundation for ventilation bldg., for the W. 179 St. Tunnel, Contr. CQH-9 to Poirier & McLane Corp., 33 W. 42 St., **$247,819.** Bids 8/8. CD 7/22.

Pa., Ardmore — BUS GARAGE—Lower Merion Twp. School Dist., Ardmore, maintenance shop bus garage to Frank V. Warren, Inc., 225 S. 15 St., Phila., **$140,884.** Bids 7/12. CD 6/30.

●Tenn., Knoxville—HIGH SCHOOL—City Bd. Educ., Knoxville, Fulton High School to Foster & Creighton Co., American Nat'l Bank Bldg., Nashville, **$1,580,300.** Bids 8/11. CD 8/18, under LB.

Tex., Houston—FERTILIZER PLANT—City, M. H. Westerman, secy., City Hall, 900 Brazos St., fertilizer plant to Rust Engr. Co., Esperson Bldg., **$418,015.** Est. $425,000. Bids 7/20. CD 7/12.

●♦Tex., Lubbock — STORAGE — Commodity Credit Corp., 14 St. and Independence Ave., S. W. Wash. 25, D. C., construct 350 wood storage units for corn sundries storage to Dickenson-Payne Constr. Co., Lubbock, Approx. **$2,500,000.**

●Va., Suffolk—HOSPITAL—Louise Ubiel Memorial Hospital, c/o contractor, hospital to Virginia Engr. Co., Newport News, **$1,822,000.** Bids 8/10. CD 8/17, under LB.

Ont., Barrie—HOUSING—Central Mortgage & Housing Corp., 395 Fleet St. W., Toronto, 50 houses, Proj. 1/49, to Pentang Cement B. & B. Co. Ltd., Church St., Penetanguishene, Approx. **$350,000.** Bids 8/4. CD 7/25.

Ont., Brantford—HOUSING—Central Mortgage & Housing Corp., 395 Fleet St. W., Toronto, 50 houses, Proj. 9/49. to R. F. Booth Constr. Ltd., 1886 Drummond Rd., Niagara Falls, Approx. **$350,000.** Bids 7/28. CD 7/21.

●Que., Montreal — POSTAL TERMINAL ADDN.—Government of Canada, Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., terminal postal station addn., to Charles Duranceau Ltd., 2545 Jacques Hertel, **$3,015,000.** Bids 8/3. CD 7/12.

COMMERCIAL BUILDINGS

BIDS ASKED

September 12

Mass., Boston — HOSPITAL — Peter Bent Brigham Hospital, 721 Huntington Ave., hospital additions and addns., Approx. $250,000. Marcus & Nocka, 251 Columbus Ave., archts. Extended date. CD 8/1.

September 15

N. C., Gastonia—HOSPITAL—Gaston Memorial Hospital, Inc., c/o R. Grady, Rankin, chn., Gastonia, hospital. Plans deposit $30 general, $20, plumbing, heating and electrical work. Walter Hook & Assoc., Inc., 303½ W. 4 St., Charlotte, archt. CD 5/13.

O., Lakewood—CHURCH, SCHOOL—Gethsemane Evangelical Lutheran Church, 1827 Winchester St., 1 story bsmnt., church and 2 story bsmnt., L shaped school at northeast corner St. Charles and Madison Ave. $250,000. Plans deposit $20. W. G. Eckles, Lawrence Saving & Trust Bldg., New Castle, Pa., archt. CD 6/17.

September 16

N. C., Wilmington—CHURCH—Grace Methodist Church, M. H. Lander, chn. Bldg. Comm., Odd Fellow Bldg., church. Plans deposit $15. Thomas & Wagoner, 1100 Architects Bldg., Phila. Pa., archts. CD 5/26 under CA.

September 22

●Tex., Houston — MERCANTILE — Sakowitz Bros., 720 Main St., 4 story bsmnt., mercantile store, with provision for 5th floor later, concrete floor and beam fdn. for 9 story bldg. $6,000,000. Alfred C. Finn, Bankers Mortgage Bldg., archt., Robert J. Cummins, Bankers Mortgage Bldg., engr. CD 8/25.

Bids Asked

Fla., Miami Beach—APARTMENT UNITS—3939 Corporation, c/o B. Robert Swartburg, archt., 126 24 St., Miami Beach, 55 apartment units. Approx. **$250,000.**

Ill., Chicago—CLUB BLDG.—Southold Singing Club, 624 W. Wrightwood St., Zone 14, 2 story bsmnt., steel, brick club bldg., $375,000. Reuben H. Johnson, 601 N. St. Clair St., Zone 11, archt.

O., Cincinnati—RESIDENCES—Lang Bros. Inc., 5240 Lester Rd., forty 1 story 37x38 ft. brick residences, concrete bsmnt. **$600,000.**

N. J., Millville—BLDG.—Millville Y.M.C.A., Millville, soon lets contract bldg., **$250,000.** Walter Custer, Giles Rd., Bridgeton, archt. Extended date. CD 8/18.

LOW BIDDERS

Ala., Anniston—BLDG.—Y.M.C.A. Anniston, Aug. 25, Y.M.C.A. Bldg., from J. F. Holley, 905 6 Ave N., Birmingham, **$415,000.** CD 7/28.

Calif., Oakland—HOUSE OF STUDIES—St. Dominic's Priory, 2390 Bush St., San Francisco, Aug. 23, 3 story, rein.-con. House of Studies for College of St. Albert the Great, from John F Tulloch, 3428 Ettie St., Oakland, **$454,117.** CD 8/16.

Ga., Decatur—CHURCH, etc.—First Christian Church, c/o Poundstone, Ayers & Godwin, archts., Palmer Bldg., Atlanta, Aug. 23, church and Sunday school, from Wey-Leonard Constr. Co., 200 Alexander St., N. W., Atlanta, **$296,540.** CD 7/8.

Ia., Des Moines—HOSPITAL—Iowa Methodist Hospital, 1200 Pleasant St., Aug. 24, general contract hospital addn., from A. H. Neumann & Bors., 514 Hubbell Bldg., **$922,049.** CD 6/27.

CONTRACTS AWARDED

Ala., Birmingham—HOMES—Green Acres Homes, c/o Earl A. Murray, archt., Clark Bldg., Birmingham, 79 homes, to Shades Valley Constr. Co., c/o archt. Approx. **$560,000.**

Ala., Birmingham—APARTMENT DEVELOPMENT—South Park Gardens, c/o contractor, apartment development, to G. A. Paul, 14 Bonita Dr., Birmingham, Approx. **$300,000.**

Ala., Montgomery — RESIDENTIAL DEVELOPMENT—Housing, Inc., c/o contractor, residential development, to Algernon Blair, First National Bank Bldg. Approx. **$290,000.**

Ala., Montgomery — APARTMENT — John Matheson, c/o contractor, 8 apartments, to Jack A. Roberts, 1320 N. 23 Ave., Birmingham. Approx. **$500,000.** CD 7/11.

Calif., Duarte—DWELLINGS, etc.—B. E. Turner, Inc., 26 E. Santa Clara Rd., Arcadia, 92 frame, stucco dwellings and garages, Owner builds. **$483,500.**

Calif., Los Angeles—DWELLINGS—Burco, Inc., 7462 Lauker-Shim Blvd., 56 frame, stucco dwellings. Owner builds, **$347,200.**

Calif., Norwalk—DWELLINGS, etc.—Sydmar Homes, Inc., 6305 Orange Ave., Long Beach, 37 frame, stucco dwellings and garages, Owner builds. **$301,700.** Paul Duncan, 4823 Laurel Blvd., Los Angeles, archt.

Calif., Oakland—STORE—Moores Ltd., 845 Market St., San Francisco, 3 story store, to Dinwiddie Constr Co., 210 Crocker Bldg., San Francisco. Approx. **$450,000.** Albert F. Roller, 1 Montgomery St., San Francisco, archt.

●Calif., Whittier — DWELLINGS — Phoenix Constr. Co., 642 S. Western Ave., Los Angeles, 236 frame, stucco dwellings. Owner builds. **$1,053,000.**

Conn., Farmington — MONASTERY, etc. — Passionist Fathers Retreat, Very Rev. Gabriel, Gorman, 1901 West St., Union City, N. J., precast concrete, brick veneer, limestone Monastery-retreat, Tunxia Rd., to Gilbane Building Co., 240 Calverly St., Providence, R. I., Est. **$700,000;** site preparation, excavating, etc., to E. B. McGurk, Inc., 355 Barbour St., Hartford, **$77,500.** CD 6/30.

Conn., Hamden — CHURCH, etc.—Spring Glen Congregational Parish, G. A. Riggan, pastor, 19 Spring Glen Terrace, 1 story, bsmnt., brick, stone church and brick, cinder block parish house, Whitney Ave. and Glen Parkway, to Mott-Mohr Constr. Co., Inc., 15 Mead St., New Haven. Approx., **$300,000.** CD 2/16.

●Del., Wilmington—STORE, etc.—Sears, Roebuck & Co., 4640 Roosevelt Blvd., Phila., Pa., retail form store and service station, to Wark & Co., 1700 Sansom St., Phila., Pa., **$2,000,000.** Bids 8/16. CD 8/2.

Fla., Miami Shores—HOMES—Miami Shores Homes, Inc., c/o contractor, 39 homes, to Fleeman Builders, 721 N. W. 21 Court Miami, Approx. **$335,000.**

●**Ga., Atlanta** — APARTMENT DEVELOPMENT—Wrenwood Apartments, c/o contractor, apartment development, to Goode Constr. Co., Johnson Bldg., Charlotte, N. C. Approx. **$1,350,000.**

Ga., Atlanta—APARTMENT UNITS—Northwood Apartments, Inc., c/o contractor, 64 apartment units, to Mion Constr. Co., Techwood Dr. N. W. Approx. **$300,000.** CD 5/17.

Ga., Savannah — THEATRE — Savannah Theater, c/o contractor, theater, to Artley Co., 504 E. Bay St. Approx. **$250,000.**

Ill., Chicago—HOUSING—Elandee Building Corp., 6412 S. Ashland St., 30 residences 5300 to 5358 and 5301 to 5359 blocks S. Springfield St. Owner builds. **$300,000.** Floyd Evans, 1962 E. 73 Pl., Zone 49, archt.

Ill., Chicago—APARTMENTS—51st and Michigan Corp., 106 E. 51 St., Zone 15, converting 73x160 ft. hall into 64 apartments, to Crouch & Walker Co., 22 W. Kinzie St., Zone 10, **$250,000.** Anton Johnson, 8 S. Dearborn St. Zone 3, archt.

Ill., Chicago—HOUSING—I Bass & Son, 30 N. LaSalle St., Zone 2, 1 apartment bldgs., 2500 to 2552 Fouhy Pl. Owner builds. E. P. Steinberg, 180 W. Washington St., Zone 2, archt., Awarded 8/23.

Ill., Chicago—RECTORY—Catholic Bishop of Chicago, 720 N. Wabash St., Zone 10, steel, brick, concrete rectory, 6415 S. Woodlawn St., to Rymont Corp., 228 N. LaSalle St., Zone 1, **$250,000.** C. E. Miller, South Bend, Ind., archt.

Ill., Mattoon—TELEPHONE EXCHANGE—Illinois Consolidated Telephone Co., 115 S. 17 St., 2 story, bsmnt., 60x110 ft. steel, brick, concrete, stone dial equip. exchange to J. L. Simmons Co., 2146 N. Woodford St., Decatur, Ind., **$250,000.** Holobird Root & Burgee, 180 N. Michigan St., Chicago, Zone 1, archts.

●**Ill., Niles**—OLD PEOPLES HOME—St. Andrew Sobola Home for Aged, Touhy and Newark Sts., 5 story, steel, concrete, brick, stone old peoples home, to John Gebhardt & Son, 308 W. Washington St., Chicago, Zone 6, Approx. **$2,000,000.** CD 5/13.

Ill., Palos Heights — SCHOOL — St. Coletta School, Palos Heights, 13 school bldgs. for handicapped children to Kinnare Corp., 2816 W. Monroe St., Chicago, Zone 12, **$350,000.** Thomas E. Cooke, 228 N. LaSalle St., Chicago, Zone 1, archts. Awarded 8/1.

Ill., Skokie—HOUSING—Epson Constr. Co., 5415 Crain St., 25 brick, stone ranch type homes, Owner builds. **$400,000.** Emil J. Minx, 7008 N. Rockwell St., Chicago, Zone 45, archt.

Ind., Gary—HOUSING—Pachter Constr. Co., 728 Broadway, 13 brick bldgs. Owner builds, **$100,000.** Warriner & Warriner, 527 Broadway, archts.

Md., Baltimore—HOUSING—James Keelty Co., 4200 Edmondson Ave., thirty six 19x28x32 ft. concrete, brick houses, Overbrook Rd., Pinehurst Rd., Rodgers Forge, separate contracts, **$250,000.**

Md., Baltimore—HOUSING—National Realty Corp., 22 E. 21 St., fifty seven 2 story 12x32 ft. and 30x45 ft. residences, separate contracts, **$342,000.** Wm. E. Gray, 12 E. Pleasant St., archt.

●**Minn., Minneapolis**—APARTMENTS—Owner, c/o contractor, general contract, three 3 story apartments, 34 St. S., between Colfax and Dupont Aves., to Alexander & Kingbay, 4641 Hiawatha Ave. Approx. **$1,300,000.** P. Crosier & Son, 2441 Lyndale Ave. S. archts.

O., Cleveland—HOMES—Charles B. Dick, 22700 Westlake Rd., Rock River, 45 one story bsmnt., frame homes on Emory Ave. separate contracts. **$350,500.**

O., Cleveland — CHURCH — Our Lady of Peace, Mon. Reilly, Dir., 12505 Buckingham Dr., 1 story no bsmnt., 98x170 ft. lim-stone and brick church, rein.-con. floors, incl. chapel and sanctuary to Roediger Constr. Co., 1737 Euclid Ave., **$290,000.**, Est. $300,000. Bids 8/15. Awarded 8/19. CD 8/5.

O., Cuyahoga Falls — THEATER — Slaff Amusement Co., Film Exchange Bldg., Cleveland, 1 story 85x300 ft. brick, block, and steel theater on State Rd. between Chamberlain and Maitland Sts., mezzanine parking facilities for 900 cars, separate contracts. Approx. **$400,000.** George Ebeling, 234 Colonial Arcade, Cleveland, archt., Walter Sutliffe, State Rd., supt. on site in charge construction. CD 7/14.

Okla., Ponca City—CHURCH—First Baptist Church, Ponca City, church and educational sect. to Ellis, Nicholson & Cramer, Hightower Bldg., Oklahoma City, Zone 2, **$365,000.** Est. $350,000. ENR 8/7/47.

Pa., Phila. — RESIDENCES — Brookhaven Corp., 146 Long Lane, Upper Darby, residential development, Woodbine Ave., separate contracts. **$250,000.**

Pa., Phila. — RESIDENCES — Max Chipin & Sons, 6301 Crittenden St., residential development, Cordoza St., separate contracts, **$250,000.** CD 8/11/48, under CA.

Pa., Phila. — CHURCH — St. Hugh's Roman Catholic Church, Mascher and Tioga Sts., church to James J. Clearkin, 4450 Leiper St., Approx **$250,000.** Bids 7/6. CD 6/29.

Pa., Phila.—RESIDENCES—Hyman Korman, 6035 Castor Ave., 107 residences, Sylvester and Harrock Sts., separate contracts. **$829,500.**

Tex., Lancaster—SHOPPING CENTER—A. B. McKinney, Marlow, Okla., and c/o John A. Dewberry, Beckley Rd., Dallas, 15 unit rural shopping center. Own forces. Approx. **$300,000.**

●**Va., Roanoke**—APARTMENT—B. F. Bonner, Mutual Bldg., Richmond, apartment. Owner builds. Approx. **$1,000,000.**

Pa., Springfield—CHURCH, SCHOOL—Holy Cross Roman Catholic Church c/o Henry D. Dagit & Sons, archts., 1329 Race St., Phila., church and school to Joseph R. Farrell, Inc., 4424 Market St., Phila., **$400,000.** Bids 8/12. CD 8/2.

●**Tex., Bellaire**—DWELLINGS—J. S. Norman Building Co., 4815 Richmond Rd., 200 dwellings, south side Long Point and Tech or Tel. Rds. Owner builds. Approx. **$1,700,000.** Hilton & Coulson, 3821 Fannin St., Houston, engrs. CD 7/25.

Tex., Houston — DWELLINGS — Magnolia Realty Co., c/o H. L. Crate, pres., 2nd Natl. Bank Bldg., 70 Negro dwellings. Owner builds. **$250,000.** CD 8/19.

Tex., Houston—SHOPPING CENTER—Tom Ruland & Assoc., 3501 Buffalo Dr., addnl. shopping center near Spring Branch to Bouiffle Constr. Co., 1402 Westheimer St., Approx. **$800,000.** CD 8/17.

Tex., Houston—DWELLINGS—Lee G. Wiley & Co., 1511 Eagle St., 20 dwellings, Harrisburg-Park Pl. Owner builds. **$250,000.** CD 8/19.

Tex., Houston — HOUSING — S. N. Adams, 3713 Inwood St., housing, adjoining Tall Timbers sect., own forces. Approx. **$450,000.** CD 8/12.

Utah, Salt Lake City—OFFICE—Mt. Fuel Supply Co., 36 E. State St., office addn., to Cannon Constr. Co., 959 S. 7 West St. Approx. **$270,000.** Ashton, Evans & Brazier, 24 S. West Temple St., archts.

Wash., Seattle—APARTMENT—P. D. Wick, C. H. Dahlgren, F. T. Ahlson & C. T. Miller, Campbell Bldg., 15 story, rein.-con. apartment, day labor, **$800,000.** Miller & Ahlson, Campbell Bldg., archts. CD 7/12.

Wis., La Crosse — SEMINARY — Roman Catholic Diocese of La Crosse, Occ. Holy Cross Seminary, 1419 Cross St., concrete, brick, stone, steel, seminary incl. Unit A, 2 story bsmnt., T-shaped 164x300 ft.; Unit B, 3 story, bsmnt., 61x76 ft.; Unit C, 3 story, bsmnt., 64x309 ft. Unit D, 3 story, bsmnt., T-shaped 40x160 ft., and 44x176 ft., and 53x99 ft. boiler room, steam heating, to Standard Constr. Co., 250 Builders Exchange, Minneapolis, Minn., E. J. Schulte, 320 E. McMillan St., Cincinnati, Ohio, archt.

Wis., Madison — HOUSES — Mohawk Bldg. Corp., 4130 Paunack Ave., fifty-three 1½ story frame houses, Own builds. **$384,250.**

Wis., Milwaukee — CHURCH — St. Gerard's Catholic Congregation, 3026 S. 17 St., Zone 7, 1 story bsmnt., 34x67 ft. steel, brick church addn. and 2 story bsmnt., 53x126 ft. school, concrete fdn. and floors, steam heating, to Joseph Stark Co., Sussex, Approx. **$275,000.** F. S. Gurda, 733 W. Mitchell St., Zone 4, archt. CD 7/28.

INDUSTRIAL BUILDINGS

BIDS ASKED

September 12

Tex., Fort Worth—GENERATOR SERVICE BLDG.—Beard & Stone Electric Co., 13 and Macon Sts., 1 story 150x200 ft. rein.-con. stone and granite trim generator service bldg., air-conditioning, paved parking space. $100,000-$250,000. Plans deposit $25. Wilson & Patterson, 209 Majestic Bldg., archts. CD 8/19.

September 15

Ill., Chicago—PLANT—Borden Co., 3638 N. Broadway, Zone 13, plant, 1801 S. Kilbourn St., $100,000.

September 17

Fla., Fort Lauderdale—WAREHOUSE, etc. —Peninsular Supply Co., c/o W. T. Vaughn, 909 E. Las Olas Blvd., 106x193 ft. warehouse and 77x175 ft. office.

September 17

Neb., Cambridge — SERVICE BLDG. — Twin Valleys Electric Membership Ass'n., Cambridge, service bldg. with office in connection. $60,000. Helleberg & Helleberg, Kearney, archts.

October 1

O., Lancaster—WAREHOUSE—Omar, Inc., A. B. Corn, purch. agt., 1910 Harney St., Omaha, Neb., branch warehouse. $125,000. Luria Eng. Co., 500 5 Ave., New York, N. Y., engr. and archt.

About October 20

Mo., St. Louis—WAREHOUSE—Artophone Corp., 4200 Forest Park Ave., St. Louis, Zone 8, brick, concrete, steel warehouse, service and office bldg., Wischmeyer & Lorenz, 911 Locust St., Zone 1, archt.; Leslie J. Bergmeier, 1504 S. Grand Blvd., Zone 4, structural engr.; John D. Falvey, 316 N. 8 St., St. Louis, Zone 1, mechanical engr.

Bids Asked

N. J. Vineland — WAREHOUSE — Everett Keen Poultry Equipment Co., 420 Pear St., warehouse, over **$75,000.** Edward C. Scheldt, 610 Landis Ave., archt.

Pa., Chester — SALES, SERVICE—Pontiac Authorized Sales & Service, 9 and Sproul Sts., sales and service bldg., Approx. $68,000. Norman Hulme, Weightman Bldg., Phila., archt., Bids 1/18 rejected. CD 1/13.

LOW BIDDERS

Tex., San Antonio—STORAGE, SHOP—R. H. Fisher, 304 Brooklyn St., Aug. 22, 2 story 20,000 sq. ft. masonry furniture storage and repair shop, concrete slab fdn., from Burrows Bros. Constr. Co., 101 Belmont St., **$71,169.** $75,000. CD 8/16.

CONTRACTS AWARDED

Ala., Sheffield — PLANT ADDN. — Electro Metalurgical Co., mfg. plant addn., to C. G. Kershaw Contracting Co., 2212 20 Ave., South, Birmingham. Approx. **$68,000.** CD 7/11.

Calif., Los Angeles—WAREHOUSE, etc.—The Best Foods, Inc., 1900 Bryant St., San Francisco, brick warehouse and office at 5811 S. San Pedro St., to The Austin Co., 777 E. Washington Blvd., Los Angeles. M. J. Gabrielsen, 4657 Hollywood Blvd., Los Angeles, engr.

Ill., Chicago—FACTORY—Chambers Gasket & Mfg. Co., 314 W. Superior St., Zone 10, 1 story, brick, steel, concrete factory to Northern Builders Inc., 4002 Waddroon St., Chicago, Zone 41, **$80,000.** Awarded 8/10.

Md., Baltimore—PLANT—Consolidated Gas Electric Light & Power Co., Lexington Bldg., 1 and 2 story masonry, concrete steel plant alterations and addns., 700 Constitution St., to Cummins-Hart Constr. Co., 2023 N. Charles St., **$250,000.** Taylor & Fisher, 1012 N. Calvert St. archts.

O., Cleveland—PRESSROOM AND NEWS BLDG.—Forest City Publishing Co., E. 6 and Superior Sts., pressroom bldg. and news bldg., brick, concrete block and steel constr., between 1801 and 1846 Superior Ave. N. E. to Dunbar Co., 8201 Cedar Ave., $400,000. Hubbell & Benes, 4500 Euclid St., archts.

O., Yellow Springs — FOUNDRY — Morris Bean & Co., Yellow Springs, design and construct 1 story 60,300 sq. ft. steel frame aluminum precision molding foundry to The H. K. Ferguson Co., 1783 E. 11 St., Cleveland. Est. **$650,000.**

S. C., Bennettsville—PLANT—Marlboro Development Corp., Bennettsville, mfg. plant. Owner builds. Approx. **$75,000.**

S. C., Spartanburg—SALES, SERVICE—City Motor Co., W. Main St., auto sales and service bldg. addn. to Fiske-Carter Constr. Co., Spartanburg. Approx. **$80,000.**

●**S. D., Mobridge**—POWER PLANT—Montana-Dakota Utilities Co., Mobridge, power plant to Stearns-Rogers Mfg. Co., 1720 California St., Denver, Colo. **$2,000,000.**

Tex., Amarillo—PLANT—Globe News Publishing Co. Inc., Amarillo, newspaper plant to Walter Wirtz, Amarillo, **$519,921.** Bids 8/9. CD 8/16 under LB.

Tex., Buffalo—FACTORY—S. R. Watkins, 4804 Fulton St., Houston, potato salad factory. Own forces. **$70,000.**

●**Tex., Fort Worth**—GRAIN ELEVATOR—Owner c/o Jones Hettelsater, engrs., 1911 Baltimore St., Kansas City, Mo., 2 m. bushel capacity grain elevator to J. L. McDuffie, Hotel Texas. Approx. **$1,450,000.** CD 8/29.

●**Tex., Victoria**—PLANTS—E. I. duPont de Nemours & Co., du Pont Bldg., Wilmington, Del., 9 plant bldgs., and 4 service bldgs., for mfg. of nylon chemicals on 1700 acre site on Guadalupe River, purchase and hire. Approx. **$16,500,000** and **$2,750,000** respectively. CD 7/28.

Tex., Waco—BUS TERMINAL—Southwestern Greyhound Lines, 905 Commerce St., Ft. Worth, bus terminal incl. shops to Munn & Sens, 5319 Junius St., Dallas. Approx. **$175,000.** CD 8/25.

●**Utah, Salt Lake City** — PLANT — Salt Lake Refining Co., (Standard Oil Co. of Calif.) North Salt Lake City, catalytic cracking plant, to Bechtel Corp. of Calif., 220 Bush St., San Francisco, Calif., Approx. **$10,000,000.** CD 6/21.

Que., Cote St. Luc (Postal Dist. Montreal)—YARD OFFICES ETC.—Canadian Pacific Railway Co., J. E. Armstrong, ch. engr., Windsor Station, Montreal, yard office, etc., to A. F. Byers Constr. Co. Ltd., 5675 Western Ave., Montreal, **$150,000.** CD 5/2.

Ont., St. Catharines—PLANT—McKinnon Industries Ltd., Ontario St., addns. to Bldgs. Nos. 12 and 16, at plant, to Newman Bros. Ltd., 127 St. Paul St. Approx. **$500,000.** CD 8/11.

Que., Thetford Mines—PLANT—Bell Asbestos Mines Ltd., Notre Dame St., Thetford Mines, 2 storey, 75x90 ft. concrete, brick, plant, to Poudrier & Boulet Ltd., 55 18 St., Quebec City. Approx. **$120,000.** Bids 8/17. CD 8/2.

UNCLASSIFIED

BIDS ASKED

September 13

O., Hamilton—LIGHT PLANT SYSTEM—City, Hamilton, imprv. municipal light plant sys., Contr. No. 18, underground and overhead transmission and control circuits. Plans deposit $10. Emery, Marker & Emery, 510 Toledo Trust Bldg., Toledo, consult. engrs. CD 11/12/45.

About September 13

O., Toledo — POOLS—City, Arthur Gratop, City Welfare Dir., Toledo, 15x50 ft. junior swimming pool; 2x32 ft. wading pool, Navarre Park. $165,000. Burton Mac Ritchie, Safety Bldg., city engr. CD 12/5/46.

About September 15

Missouri—RURAL DISTRIBUTION LINES—Southwest Electric Co-operative, R. H. Cochran, mgr., Bolivar, 488 mi. rural distr. lines Benton, Camden, Dallas, Greene, Hickory and Polk Counties, Frank Horton & Co., Lamar, engrs., extended date. CD 8/2.

September 20

†Texas—TURBINE GOVERNORS—U. S. Eng., 606 Santa Fe Bldg., Galveston, 2 sets hydraulic turbine governing equip. for Whitney Dam power plant. Inv. No. CIVENG-41-243-50-39. $600,000. CD 8/23.

September 27

†Arizona-California-Nevada — BULKHEAD GATES, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnish and del. f.o.b. cars at shipping point or f.o.b. cars at Boulder City, Nev., bulkhead gate, hooks, rollers, storage brackets, seals, shoes, air jams, for turbine draft tubes at Hoover Power Plant, Boulder Canyon Proj., Spec. 2771. L. N. McClellan, ch. engr.

On or About October 18

†N. J., Fort Dix—SWIMMING POOL, etc.—U. S. Eng., 120 Wall St., New York 5, N. Y., constructing 75x120 ft. concrete swimming pool with filter room, water treatment and recirculation system, underwater lighting and flood lighting systems, concrete aprons, diving boards and chain link fence and bathhouse. Invitation No. ENG-30-075-50-12. CD 10/25.

LOW BIDDERS

†California—STRUCTURAL STEEL—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Aug. 18, fabricated structural steel for Tracy switchyard, Central Valley Proj., Spec. 2743, from Vulcan Rail Constr. Co., 59-30 54 St., Maspeth, New York. **$82,965.** CD 7/26.

●Colo., Denver—STADIUM—City and County of Denver, City and County Bldg., Denver, Aug. 17, general contract 300x400 ft. brick, concrete 8,000 permanent seating and 12,000 convention seating, municipal stockyards stadium, stock show arena, ice skating rink, from Swinerton & Walberg, Box 1379, Denver. **$1,275,000*****Contract 2 and 3 from Denver Plbg. & Htg. Co., 1810 Blake St., Denver. **$374,500*****Contr. 2 only, from York Plbg. & Htg. Co., 1717 E. Colfax St., Denver. **$283,-987*****Contr. 3, only, from Johnson & Davis Plbg. and Htg. Co., 2235 Arapahoe St., Denver. **$94,633*****Contr. 4, electric and power, from Sturgeon Electric Co., Inc., 2124 Broadway, Denver. **$215,653*****Contr. 5, ice ring and refrigeration, from McCarty-Johnson Plbg. & Htg. Co., 944 Osage St., Denver. **$177,777.** Est. $2,000,000. CD 7/28.

Fla., Miami—SWIMMING POOLS—City, Miami, swimming pools at Gerry Curtis Park and Dixie Park, from Hoverkamp, Inc., 3467 S. W. 8 St., Miami. **$133,899.** CD 8/5.

Kan., Osage City — GAS DISTRIBUTION LINES—City, City Hall Aug. 9, gas transmission lines, and gas distr. sys., from Griffin Constr. Co., 6331 Woodworth St., Merriam, **$56,647.** Black & Veatch, 4706 Broadway, Kansas City, Zone 2, Mo., engrs.

●†Oregon—GENERATORS—U. S. Eng., Pittock Block, Portland, Zone 5, Aug. 26, install two 25,555 kva. a.c. generators and appurtenances for Detroit Dam on North Santiam River from Westinghouse Electric, Union Bank Bldg., Pittsburgh, Pa. **$2,094,979.** CD 7/15.

†Oregon—SUBSTATION, CONTROL HOUSE—Bonneville Power Admin., 729 N. E. Oregon St., Portland, Zone 8, Aug. 17, East McMinnville substation and control house, Inv. 4760, Yamhill Co. from Teller Constr. Co., Builders Exchange Bldg., Portland, **$74,790.** CD 8/2.

●†Oregon—RAILROAD RELOCATION—U. S. Eng., Walla Walla, Wash., project indefinitely postponed, relocation S. P. & S. R. R., Stations 6663 to 7014, McNary Dam. **$2,000,000-$3,000,-000.** CD 4/26.

CONTRACTS AWARDED

Calif., Belmont — SWIMMING POOLS — Peninsula Aquatic Club, 129 Beverly Dr., San Carlos, two 20x60 ft. concrete swimming pools, to Landon Standard Pools, 425 Old County Rd., Belmont. Approx. **$60,000.**

●Colo., Denver—STADIUM—City and County of Denver, City & County Bldg., Denver, general contract 300x400 ft. brick, concrete 8,000 permanent seating and 12,000 convention seating municipal stockyards stadium, stock show arena, ice skating rink to Swinerton and Walberg, Box 1379, Denver. **$1,275,615.** Est. $2,000,000. Bids 8/17, awarded 8/23. CD 8/26, under LB.

†Fla., Orlando—FLOATING TEST PIER—U. S. Navy, Charleston Naval Base, Charleston, S. C., constructing floating test pier at underwater sound reference Laboratory, NOY 17786, to Means Constr. Co., 945 Philips St., Jacksonville. **$79,880.** Bids 8/4. CD 7/14.

Illinois—GAS PIPE LINE—B. V. Pipeline Co., c/o Southeastern Illinois Gas Co., Harrisburg, 10 mi. gas pipe lines, from Texas Eastern Big and Little Inch pipelines, gas distr. sys. addns., Eldorado and Harrisburg, to Mid States Constr. Co., Mt. Vernon. Approx. **$110,000.**

Ill., Cicero—DOCK, etc.—Terminal Facilities, Inc., Bartlesville, Okla., dock, transfer, storage and tank facilities on Chicago River Channel to serve large oil cracking and blending facilities of Cities Service Oil Co., to Sumner S. Sollitt & Co., 307 N. Michigan St., Chicago, Zone 1. **$80,000.** Fredrick Stanton, 307 N. Michigan St., Chicago, Zone 1, archt.

Iowa — PIPELINE — Northern Natural Gas Co., Aquila Court, Omaha, Neb., replacing 2,400 ft. pipeline under Nishnabotna River, near Oakland, to R. H. Fulton Constr. Co., Lubbock, Tex. CD 6/13/46.

Mich., Detroit—BEACH DEVELOPMENT—Huron Clinton Metropolitan Auth., 1100 Cadillac Sq. Bldg., Zone 26, bath house, cafeteria, administration bldg., beach comfort stations, first aid bldgs., canopies and paving, St. Clair Metropolitan Beach, Macomb Co., to C. E. Tackels, Book Bldg., Zone 26. **$970,000.** Bids 8/4. CD 7/21.

Miss., Cleveland — DRIVE-IN THEATRE — Collier Theatres, Greenwood, drive-in theatre, Owner builds. **$75,000.**

Missouri—RURAL DISTRIBUTION LINES—M & A Electric Power Co-operative, Poplar Bluff, 144 mi. 69 KV rural distr. lines, from Poplar Bluff to connect to substations at Puxico, Idalia, Malden, Anniston, Matthews, Delta, Van Duser and Lucesville, and 9 substations, to Delta Constr. Co., Clarksville, Miss., **$671,354.** Bids 7/19. CD 7/5.

Missouri—RURAL DISTRIBUTION LINES—Webster Electric Co-operative Hugh Bennett, mgr., Marshfield, 88.5 mi. rural distr. lines, Christian, Dallas, Greene, Webster and Wright Counties, to Reinhart & Donovan Co., Commercial Exchange Bldg., Oklahoma City, Okla. **$115,357.** Bids 8/2. CD 7/27.

Missouri—RURAL DISTRIBUTION LINES—Southwest Electric Co-operative, Robert H. Cochran, mgr., Bolivar, 60 mi. conversion lines, Sects. N, Benton, Camden, Dallas, Greene, Hickory and Polk counties, force account, Approx. **$60,000.** CD 12/13.

O., Cleveland—PLAYGROUNDS—City, City Hall, grading, draining, paving, fencing, lawns, planting and lighting, Herman Ave. and Haloran Park Playgrounds, to Dominic Nero, 12202 Superior Ave. **$83,676.** Est. $90,-000. CD 4/18.

O., Washington Court House — SWIMMING POOL — City, swimming pool, Washington Park, to Sever-Williams Constr. Co., Washington Court House. Approx. **$70,000.**

Tenn., Dyersburg—GAS SYSTEM—City, Dyersburg, natural gas sys. to Sullivan, Long & Hagerty, 2026 6 Ave., N. Bessemer, Ala., **$713,687.** Bids 7/14. CD 8/5, under LB.

Tex., Burnet — GAS SYSTEM — Lone Star Gas Co., 1915 Wood St., Dallas, natural gas sys. for municipality, purchase and hire. **$55,000.**

Tex., Galveston—PIER—Peter Douvry, 1702 Blvd., pier, Owner builds. **$55,000.**

Tex., Goldthwaite—GAS SYSTEM—Lone Star Gas Co., 1915 Wood St., Dallas, natural gas sys. for municipality, purchase and hire. Approx. **$60,000.**

Tex., Houston — SPUR TRACKS — Missouri Pacific R. R. Co., R. P. Hart, ch. eng., Missouri Pacific Bldg., St. Louis 3, Mo., addnl. railway spur tracks into northwest industrial zone, force-account. Approx. **$58,000.**

Tex., Lampasas—GAS SYSTEM—Lone Star Gas Co., 1915 Wood St., Dallas, natural gas sys. for municipality, purchase and hire. Approx. **$50,000.**

Tex., Pasadena—DRIVE IN THEATER—Long Theatres, Inc., Republic Bank Bldg., Dallas, drive-in-theatre. Owner builds. **$250,-000.** CD 8/25.

Tex., San Antonio—STREET LIGHTING—City Public Service Bd., 201 N. St. Marys St., addnl. street lighting, in southeast sect. of city, force account. **$125,000.** CD 11/11/48.

†Virginia—GENERATORS—U. S. Eng., foot of Front St., Norfolk, two 1,250 kva. alternating-current generators for Buggs Island Powerhouse, Roanoke River, Eng-44-110-49-169 to Westinghouse Electric Corp., 915 W. 21 St., Norfolk. **$52,474.** Bids 5/10. Awarded 5/24. CD 4/13.

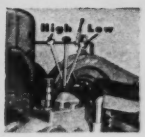
Wash., Seattle—LIGHT MANHOLES, etc.—City, County and City Bldg., Zone 4, constructing manholes and installing underground ducts from City Light substation at 3 Ave. and Madison St. to 8 and Spring Sts. by way of Columbia St., to Shoreline Constr. Co., 11711 Greenwood Ave., Seattle. **$95,285,** Est. over $50,000. Bids 8/17.

Wis., Janesville — BATH HOUSE — City, Janesville, 1 story 44x72 ft. stone on light-weight block bath house and two 40x50 ft. wings, to Ed. E. Kjornes, 708 S. Fremont St., **$71,419.** Bids 8/10. CD 12/13/44.

Wyo., Riverton—SWIMMING POOL, etc.—Bd. Educ., Riverton, swimming pool, auditorium and gymnasium, to Riedesel-Lowe Constr. Co., Cody. **$294,350.** Bids 8/8. L. C. Goodrich & Jan Wilking, Casper, archts.

Alberta—POWER LINES—Calgary Power Co., Calgary, main 23,000 volt line and lighting and power supply to Turin and Iron Springs, own forces. **$100,000.**

JAEGER 2-SPEED "HYDRO-HOISTS"



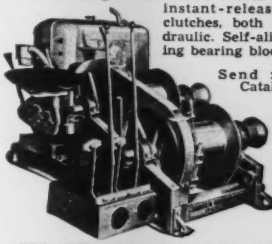
Hydraulic Control—easy, safe, accurate, fast, the same as on $25,000 cranes.

2 Speeds—Just shift transmission lever to high gear to speed your lighter loads.

Automotive Transmission—use standard gas, diesel or electric power at efficient 1800 rpm. Change power quickly in the field.

All-Steel—no broken side frames or drum flanges. Air-cooled brakes and instant-releasing clutches, both hydraulic. Self-aligning bearing blocks.

Send for Catalog.



"Utility," 25 to 40 hp. "Erectors," 60 to 100 hp.

The Jaeger Machine Co., Columbus 16, Ohio

Hayward Buckets

Use this Class "E" Clam Shell Bucket for handling crushed stone, gravel, sand and other bulk materials.

THE HAYWARD CO., 40-50 Church St., N. Y.

DREDGES

HYDRAULIC
● DIPPER ●
CLAMSHELL

Bolted sectional steel hulls for landlocked, inland waters
If you need a dredge, write us!

AMERICAN STEEL DREDGE CO. INC.
FORT WAYNE 1 · INDIANA · U.S.A.

DESIGNERS AND BUILDERS OF DREDGING EQUIPMENT SINCE 1905

PROPOSED PROJECTS

WATER SUPPLY

Conn., Danbury—City, J. A. Brennan, City Hall, 2.5 mi. 16 in. watermains, North St. **$200,000.** Sidney Rapp, City Hall, city engr.

Ind., Muncie — Muncie Waterworks, A. A. Newquit, mgr., 316 S. Mulberry St., 60x165 ft. 15 ft. deep, 1 story, 49x52 ft. brick, concrete sedimentation basin and filter bldg. **$203,000** G. A. Woodhouse, c/o WW Service Co., Inc., 50 Broad St., New York, N. Y., consult. engr. CD 7/1.

La., Rayville—Town, bond election Sept. 20, WW imprvs. **$200,000.**

N. Y., Port Washington — Port Washington Water Dist., 163 Main St., 1 m.g. water tank. **$250,000.**

Pa., Perryopolis — Town, water distr. sys. **$125,000.** Clinton E. Rodgers, Beaver Falls, planning consult.

R. I., Woonsocket—City, Oscar Hurteau, 66 Morin Heights Blvd., plans by Oliver W. Fontaine, 285 Main St., waterpipe, replacing c.i. pipe, trenching and backfilling, Morin Heights Sect., Housing Proj. development. **$100,000.**

Tex., College Station—Agricultural & Mechanical College of Texas, College station, water sys., 2 m. gal. rein.-con. water reservoir, booster pump station, **$625,000;** 7½ mi. 18 in. water supply line, **$225,000.** CD 5/24.

●**Tex., Dallas**—City, City Hall, Main and Harwood Sts., 96 m. gal. daily capacity water purification plant, near Carrollton, 9 mi. outside Dallas city limits, **$5,800,000;** approx. 11 mi. 42 in. water supply main from purification plant to city of Dallas, **$5,500,000;** rein.-con. underground water storage reservoir, Hillcrest and Walnut Lane, **$1,000,000.** Myers & Noyes, Tower Petroleum Bldg., engrs., T. C. Forrest, Jr., Praetorian Bldg., consult. engrs. CD 12/1.

●**Ont., Ottawa** — City, C. D. Wight, wks., commr., City Hall, waterworks sys. extens., **$5,972,000.** Gore & Storrie, 1130 Bay St., Toronto, engrs.

Que., Beauport—Municipality, P. Grenier, secy., ratepayers vote in favor, WW sys. imprvs., **$240,000.**

SEWERS, WASTE DISPOSAL

Ark., Mariana—City, expanding, imprv. sewerage sys. disposal plant, **$285,000.** Max A. Mehlburgher, Pyramid Bldg., Little Rock, consult. engr.

Calif., Hemet—City, Hemet, two stage biochem 500,000 g. p. d. capacity sewage treatment plant, **$100,000.** R. S. Brooks and J. C. Carwile, Monrovia, consult. engrs. CD 4/38/48. Bid 4/5/48 rejected.

Calif., Los Angeles—Bd. Supervs., Los Angeles Co., 50 Hall of Records, 4.69 mi. sanitary sewers in Acacia Ave., Pico, **$143,750.** C. E. Arnold, co. engr.

Ga., Columbus—City, bond election Nov. 16, sanitary sewer imprvs., **$300,000.**

La., Gretna—City, bond election September 20, incinerator, **$300,000.**

Miss., Tupelo—City, sanitary sewer projects, Willis Heights Sewerage Sys., **$205,518;** North Tupelo Sewerage Sys., **$192,267;** East Tupelo Sewerage Sys., **$92,269;** Community Hospital Sewerage Sys., **$72,634;** sewage treatment plant, **$292,317.** Leland B. Cook, P. O. Box 290, consult. engr.

Pa., Bradford—City, City Hall, sewage disposal plant, garbage incinerator, **$750,000.** Gannett, Fleming, Corddry & Carpenter, 600 N. 2 St., Harrisburg, consult. engrs.

Pa., Perryopolis—Town, sewage disposal sys **$125,000.** Clinton E. Rodgers, Beaver Falls, planning consult.

Tex., Corpus Christi—City, City Hall, addnl. storm sewers, **$300,000;** sanitary sewer mains, in vicinity of Oso and W. Broadway disposal plants, **$250,000;** sewage disposal plant incl. enlarging and rehabilitating plants at Oso, and W. Broadway, **$550,000.** R. L. Otto, city engr. CD 10/15/47.

Tex., Stockdale — City, Stockdale, voted bonds, sewage disposal plant, **$50,000;** sanitary sewer lines, **$50,000.** Frank T. Drought, 117 W. Pecan St., San Antonio, consult. engr. CD 8/8.

Tex., Terrell Hills (San Antonio P. O.)—City, David Steves, mayor, 408 Eldon St., storm sewers, **$150,000;** sanitary sewers, **$150,000.** Frank T. Drought, 117 W. Pecan St., San Antonio, consult. engr. CD 2/15/44.

●**Va., Roanoke**—City, W. P. Hunter, mayor, Municipal Bldg., voted bonds, sewage treatment plant, **$4,050,000.** CD 5/27.

Wash., Yakima—City, City Hall, trunk sewer along Mead and laterals in Southwest Yakima area between Voelker and 16 Aves. and Lenox between Cornell and Voelker Aves., **$165,997.** A. B. Collins, city engr. CD 2/3/44.

●**Ont., Ottawa** — City, C. D. Wight, wks., commrs., City Hall, sewage disposal plant, first stage **$5,130,000;** second stage **$11,750,000;** lateral sewers, **$7,500,000.** Gore & Storrie, 1130 Bay St., Toronto, engrs. CD 11/18/48.

BRIDGES

●**Florida**—State Hy. Dpt., Tallahassee,
Pinellas Co.—Tampa Bay Bridge and Causeway, **$16,000,000.** Project transferred to State CD 2/23, under Fla., St. Petersburg.

Fla., Fort Pierce—City, Fort Pierce, overpass over Florida East Coast R. R., downtown section of city to imprv. traffic congestion, **$160,000.** Howard Stanton, city mgr. and engr.

●**Indiana**—State Hy. Dpt., Indianapolis
Elkhart Co. — rein.-con. overhead bridge, U. S. Hy. 33S, New York Central Railway, **$1,000,000.** R. Bower, ch. engr.
North Carolina—State Hy & P. Wks., Comn., Raleigh,
New Hanover Co. — reconstruct Bradley Creek bridge on U. S. 70 and 74 on Wrightsville Beach Hy., near Wilmington. Proj. 3546. Over $50,000.

O., Lisbon—Comrs., Columbiana Co. Courthouse, repairing bridges. Approx. **$100,000.**

●**South Carolina**—State Hy. Dpt., Columbia,
Charleston Co.—bridge over Ashley River. **$2,000,000.**
Tex., San Benito—City; Cameron Co.; and Cameron County Water Imprv. Dist., San Benito, bridge, crossing Resaca de los Fresnos. **$150,000.** D. T. Dozier, Brownsville, county engr.

STREETS AND ROADS

Calif., Los Angeles—Bd. Supervs., Los Angeles Co., 501 Hall of Records, curbs, gutters, sidewalks in Osage Ave., Lawndale, **$174,000.** C. E. Arnold, co. engr.

Ga., Columbus—City, Columbus, bond election Nov. 16, wid'n. curbing various streets, **$400,000.** CD 10/29/47.

Tex., Corpus Christi—City, Corpus Christi, concrete sidewalks and street constr., imprv. and surf. **$500,000.** R. L. Otto, city engr. CD 4/19/48.

Tex., Edinburg—Hidalgo County Road Dist. 9, Edinburg, voted bonds, road constr. and imprvs. **$238,000.** CD 7/21.

Tex., Post—Garza Co., Courthouse, asph. type road paving, various parts of county. **$300,000.**

Tex., Terrell Hills (San Antonio P. O.)—City, David Steves, mayor, 408 Eldon St., street constr., paving and drainage. **$350,000.** Frank T. Drought, 117 W. Pecan St., San Antonio, consult. engr.

EARTHWORK, WATERWAYS

Ark., Helena—White River Drainage Dist., Helena, drainage work roads, White River Drainage Dist., Desha and Phillips Counties, **$225,000.**

●**Ia., Davenport**—City, City Hall, flood control construction Duck Creek, **$1,800,500.** R. O. Graham, ch. engr. CD 1/25/43.

†**South Carolina**—U. S. Eng., 1st and Douglas Sts., N. W. Wash. 25, D. C., dredging in Shipyard River. **$300,000.**

Tex., Columbus—Colorado County Soil Conservation Dist., Columbus, conservation proj., incl. grading, ditching, earthen tanks, terracing, **$100,000.** Earl A. Ballman, Courthouse, consult. engr.

AIRPORTS AND AIRBASES

Ark., Little Rock—FIELD IMPRVS.—City, Adams Municipal Field imprvs. and repairs, **$187,072.** L. A. Henry, Pyramid Bldg., consult. engr.

Ill., Alton, East Alton, Wood River, Hartford and Bethalde — BUILDINGS, etc. — Civic Memorial Airport Auth., 2nd stage construction, bldgs. and hangars. **$200,000.** Foth Porath & Horn, Green Bay, Wis., engrs.

Ill., Danville—BUILDINGS, etc—Vermillion County Airport Auth., Danville, 2nd stage constr., bldgs. and hangars, **$400,000.** Naess & Murphy, 208 S. La Salle St., Chicago, Ill., engrs. CD 8/25/47.

Ill., Jacksonville — ADMINISTRATION BLDG.—Jacksonville Airport Auth., Jacksonville, Stage 2, administration bldg., **$100,000.** Hadley & Worthington, Myers Bldg., Springfield, archts.

Ill., Marion-Herrin — ADMINISTRATION BLDG.—Williamson County Airport Auth., Marion, 2nd stage construction, bldg., hangars, etc., **$230,000.**

Ill., Rock Island, Moline, East Moline, Silvis—HANGARS, etc.—Quad City Airport Auth., Rock Island, 2nd stage construction, hangars, administration bldg., utilities, etc. **$620,000.** CD 8/25/47.

●**R. I., Hillsgrove**—AIRPORT—State, Phillip Mancini, Comr. Pub. Wks., State Office Bldg., Providence, airport proj., runway extens., new runway, drainage work, lighting Hillsgrove Airport, **$2,000,000.** Thompson Litchner, 8 Alton St., Boston, Mass., consult. engr. CD 9/9/48.

R. I., Smithfield—AIRPORT—State, Phillip Mancini, Comr. Pub. Wks., State Office Bldg., Providence, northeast and southwest 4,000 ft. long paved runway, 2,000 ft. gravel runway, land work, operations bldg. etc. **$950,000.** Knappen, Tippetts & Abbet, 62 W. 47 St., New York, N. Y., consult. engrs. CD 9/9/43.

●**Tex., Corpus Christi**—HOUSING—U. S. Navy, Naval Air Station, Corpus Christi, 850 housing rental units, **$5,950,000.** CD 6/7/46.

Tex., Denison—AIRPORT—Denison Civil Air Patrol c/o E. D. Sallee, Denison, airport, incl. 3 sod runways, seaplane facilities, sheltered harbor, hangars, floating plant dock, lighting sys. etc. at Lake Texoma, **$150,000.**

PUBLIC BUILDINGS

Calif., Daly City—AUDITORIUM, etc.—City, City Hall, **$295,000** bond election September 27, war memorial auditorium, and recreation center. Leonard S. Monias, 255 California St., San Francisco, archt. CD 7/11.

Calif., Visalia—SCHOOLS—Visalia Elementary School Dist., Visalia, plans by David H. Horn & Marshall D. Mortland, 1244 "O" St., Fresno, frame, stucco school, Houston Ave. and frame, stucco school, Ventural Ave. **$250,000** each.

Conn., Storrs—ADMINISTRATION BLDG.—State, Raymond Thatcher, comptroller, 114 State Capitol, Hartford, plans by Smith & Persse 956 Chapel St., New Haven, brick, concrete, steel administration bldg., University of Connecticut, over **$250,000.** CD 1/19.

Conn., West Haven—SCHOOLS—Town, Harry M. Bailey, chn. Bd. educ., brick, steel junior high school, over $250,000; brick steel elementary school, 12 rooms, gymnasium-auditorium school, western part of town, $350,000.

Del., Lewes—SCHOOL—Lewes Special School Dist., plans by Robinson, Stanhope, & Manning, Inc., Equitable Bldg., Wilmington, school, **$550,000.**

●†**D. C., Wash.** — HOSPITAL CENTER — Public Bldgs. Admin., F St. between 18 and 19 Sts. N. W., plans by Gilbert S. Underwood, c/o owner, 7 story Washington Hospital Center, **$23,000,000.**

Ga., Columbus—AUDITORIUM—City, Columbus, bond election Nov. 16, city auditorium, **$750,000.** CD 4/28/47.

●**Ind., South Bend**—COURT HOUSE ETC.—Bd. County Comrs., St. Joseph Co., Court House, South Bend, Leigh Fisher & Assoc., South Bend, court house, **$1,000,000,** office annex, **$300,000.**

Ia., Estherville — SCHOOL — Bd. Educ., Estherville, voted $200,000 bonds, school, **$360,000.** CD 12/6/46.

Kan., Ottawa — SCHOOLS — Bd. Educ., Ottawa, 2 elementary schools, **$575,000.**

Kan., Russell—SCHOOLS —Bd. Educ., Russell, **$400,000** bond election Sept. 13, two 16 classroom schools, E. M. Fuller, North Kansas City, Mo., archt.

●**La., Jennings**—HOSPITAL—State Hospital Bd., Baton Rouge, hospital unit for chronic diseases, **$1,000,000.**

La., Lake Charles—RECREATION CENTER, LIBRARY—City, City Hall, **$900,000** bond election September 27, recreation center, $500,000, library, $400,000.

●**Mass., Boston**—HOUSING——Boston Housing Auth., 10 Post Office Square, housing, East Boston, Approx. 400 unit housing, Orient Heights, East Boston, Approx. **$4,000,000.** CD 9/2/48.

●**Mont., Galen** — HOSPITAL — Montana State Bd. Examiners, Helena, plant by J. Van Teylington, Great Falls, Indian Hospital, **$2,900,000.**

●**N. J., Atlantic City**—HOUSING—Atlantic City Housing Auth., 2311 Fairmount Ave., plans by Howard A. Stout & Son, Guarantee Trust Bldg., Atlantic City, 165 unit housing, Stanley Holmes Village, **$1,500,000.**

N. J., Lodi — APARTMENT — Lodi Housing Auth., Benjamin, Martinico, ch. Lodi, plans by Kelly & Gruzen, 80 Fifth Ave., New York, **N. Y.,** 409 unit apartment.

●**N. Y., Poughkeepsie** — HOUSING — Poughkeepsie Housing Auth., Poughkeepsie, plans housing proj. **$2,000,000.**

O., Euclid — SCHOOL — Bd. Educ., 23131 Lake Shore Blvd., new elementary school and 2 story bamnt. brick and steel elementary school addn. Approx. **$250,000.**

O., New Lexington—SCHOOL—Bd. Educ., New Lexington, bond election Nov. 8, elementary grade school. **$300,000.**

O., Toledo—JUVENILE DETENTION HOME—Comrs., Lucas Co., Courthouse, bond election Nov. 8, juvenile detention home and addn. to court bldg. **$1,500,000.** CD 7/6/45.

●**O., Warrensville (Br. Cleveland)**—Cuyahoga Co. Comrs., Ontario and Lake Sts., Cleveland, plans by George S. Rider Co., Terminal Tower, Cleveland, 260 bed county tuberculosis hospital. **$4,450,000.**

Pa., Erie—BUILDING—City, City Hall, 20 Meadville St., Streets Department Bldg. **$250,000.**

●**Pa., Monessen**—HIGH SCHOOL—School Dist. of Monessen, High School Bldg., plans by Joseph Hoover, 316 Penn Ave., Pittsburgh, brick and steel Junior-Senior High School. **$1,100,000.** CD 10/17/46.

Pa., Perryopolis—HOSPITAL—Town, plans by Clinton E. Rodgers, planning consult., Beaver Falls, hospital. Approx. **$250,000.**

Pa., Perryopolis—EDUCATION CENTER—Town plans by Clinton E. Rodgers, planning consult., Beaver Falls, education center. **$250,000.**

●**Pa., Phoenixville**—HOUSING—U. S. Dpt. of Army, Valley Forge General Hospital, Phoenixville, apartments. **$500,000.** Herbert Bloom, c/o owner, post engr.

R. I., East Providence — SCHOOL — Town, C. T. Thompson, supt. East Providence, plans by Michael Traficante, 175 Taunton Ave., brick, steel elementary school, Riverside St. **$250,000.** CD 2/21.

●**R. I., East Providence**—HIGH SCHOOL—Town, C. T. Thompson, supt., East Providence, plans by Charles A. Maguire & Assoc., Turks Head Bldg., Providence, brick, steel high school. **$3,000,000.** CD 12/31.

S. D., Watertown — SCHOOL — Bd. Educ., Watertown, plans by Huxil, Hatherwick & Fritzel, 367 Boyce Greeley Bldg., Sioux Falls, elementary school. **$300,000.**

Tenn., Nashville—HEATING PLANT—City, convert steam plant into central heating plant. **$250,000.** Hart, Freeland & Roberts, 3 Natl. Bank Bldg., consult. engrs.

Tex., Barksdale — SCHOOL — Barksdale Independent School Dist., Barksdale, voted bonds, school. **$700,000.**

●**Tex., Corpus Christi** — CIVIC CENTER — City, City Hall, civic center. **$2,250,000.** R. L. Otto, city engr.

Tex., Corpus Christi—HOSPITAL—Memorial Hospital, 1606 Morgan St., plans by Smyth & Smyth, 806 S. Alameda St., 100 bed memorial hospital. **$900,000.** R. L. Vogler, 225 Oleander, St., assoc. archt. and engr.

Tex., Corsicana — SCHOOL—Navarro Junior College, Corsicana, bond election September 30, masonry main school, **$325,000;** science and rehabilitation, **$250,000.** CD 5/27/48.

●**Tex., Denison**—HOUSING—Denison Housing Auth., Denison, 150 rental housing units (1949), **$1,050,000;** 100 rental housing units, (1950), **$700,000.**

Tex., Denton — GYMNASIUM — North Texas State Teachers College, Denton, masonry womens gymnasium. $250,000. Wilson & Patterson, 209 Majestic Bldg., Fort Worth, consult. engrs. CD 10/19/44.

Tex., Edna—JAIL, etc.—Jackson Co., Edna, plans by Wyatt C. Hedrick, engr. and archt., 5201 Bannin St., Houston, jail and either repairing and remodeling existing courthouse for 23,000 sq. ft. addn. or construct new courthouse and jail, masonry constr. **$550,000** remodeling and **$800,000** new building. CD 8/13.

●**Tex., Galveston** — HOUSING — Galveston Housing Auth., c/o L. Walter Hensel, exec. dir., City Hall, 800 public housing units, **$7,000,000.**

Tex., Galveston — HOUSING — Galveston Housing Auth., City Hall, Galveston, 600 low cost housing units, **$4,200,000.**

Tex., Hillsboro—SCHOOL—Junior College, Hillsboro, masonry school, **$300,000.**

Tex., Littlefield—HIGH SCHOOL—Littlefield Independent School Dist., Littlefield, voted bonds, 2 story masonry high school, concrete slab fdn. **$500,000.** J. A. & A. Atkinson, Lubbock, archt.

●†**Tex., Orange** — HOUSING — U. S. Navy, Naval Station, Orange, 200 rental housing units, **$1,400,000.**

●†**Tex., Texarkana**—HOUSING—U. S. Dpt. of Army, Red River Arsenal, Texarkana, 1,000 rental housing units. **$7,000,000.**

W. Va., Webster Springs — HOSPITAL — Webster County Court, Webster Springs, plans by Torcello & Kreps, I.O.O.F. Bldg., Charleston, brick, concrete memorial hospital. **$250,000.** CD 3/29.

●**W. Va., Weirton** — HOSPITAL—City, City Hall, plans by Tucker & Silling, Masonic Bldg., Charleston, 150 bed hospital, nurses quarters, etc., **$3,000,000.** CD 11/17/48.

Wyo., Midwest—SCHOOL—Midwest School Bd., Midwest, school. **$250,000.**

Philippine Islands—PLANTS—Republic of the Philippines, Manila, 2 fertilizer plants for mfg. of pump, paper, paper bags and newsprint. National Development Co., Manila, engr.

Philippine Islands, Bataan—MILL—Republic of the Philippines, Manila, steel mill. National Development Co., Manila, engr.

Philippine Islands, Ilocos—TEXTILE MILL—Republic of the Philippines, Manila, textile mill. **$350,000.** National Development Co., Manila, engr.

Philippine Islands, Manila — PLANT—Republic of the Philippines, Manila, plant for repair of machines and mfg. pumps, tractors and agricultural tools. **$400,000.** National Development Co., Manila, engr.

Alta., Edmonton—BUS BARN—Municipality, bus barns, **$185,000.** Edmonton Transit Sys., Edmonton, engrs.

B. C., Keremeos—HIGH SCHOOL—Trustees School Dist. 16, Keremoes, rein.-con. Junior-Senior High School. $250,000. R. Lyon, Penticton, archt.

●**B. C., Vancouver**—HOUSING—Central Mortgage & Housing Corp., 360 Homer St., 4,000 houses in metropolitan area. Approx. **$28,000,000.** CD 11/19/47.

Newfoundland, St. Johns—UNIVERSITY—University of Newfoundland, c/o Hon. S. J. Hefferton, Ministry of Educ., St. John's University. **$500,000.**

Ont., Englehart — SCHOOL — High School Bd., Englehart, concrete, steel, brick school, **$270,000.**

Que., Drummondville — SCHOOL — School Comn., Herist St., 4 classroom, living quarters for teachers Garceau School, 270 Lindsay St., Approx. **$125,000;** 8 classroom St. Therese School addn., St. David St., Approx. **$150,000.** P. LaBranche, Hotel Grand, archt. CD 12/17/4.

COMMERCIAL BUILDINGS

Calif., Oakland — MEDICAL-DENTAL — Cameron Medical Co., 426 29 St., plans by James H. Anderson & George P. Simonds, 2800 Park Blvd., 3 story, rein.-con. medical-dental bldg. **$420,000.**

●**Colo., Denver** — BUILDING — Young Mens Christian Assn., 25 E. 16 Ave., Y.M.C.A. Bldg. **$1,000,000.**

Conn., Willimantic — HOUSING—Halecrest Corp., c/o Morse & Guilford, archts., 16 Elm St., East Hartford, 100 frame 27x27 ft. houses, High St., **$700,000.**

Ill., Bellwood — SCHOOL — St. Simeon's Parish, Rev. E. Plawinski, Butterfield Rd. and Bellwood St., plans by Nairne W. Fisher, 79 W. Monroe St., Chicago, 2 story, bsmnt., 70x160 ft. and 15x180 ft. parochial school bldgs., incl. cafeteria and convent, **$275,000.**

●**Ill., Chicago**—APARTMENT—New York Life Insurance Co., 51 Madison Ave., New York, 10, N. Y., plans by Skidmore, Owings & Merrill, 100 W. Monroe St., 1,800 apartment projects on 10 square blocks, 31, 33 Sts., S. Park Ave. and lakefront. **$18,000,000.** CD 7/30/48.

Ind., Richmond — DORMITORY—Earlham College, Richmond plans by Vincent G. Kling, 917 Corinthian Ave., Phila., Zone 30, Pa., 4 story, brick, rein.-con. steel womens dormitory. **$250,000.**

La., New Orleans—APARTMENT—Frances K and John L. Hermann, 1712 Napoleon Ave., plans by Shourds-Mogabgab & Bean, Audubon Bldg., 8 story apartment house, incl. 176 family units.

La., Opelousas — HOUSING — Joe Sliman, Palmetto, housing proj., **$300,000.**

Minn., Austin—CHURCH—The First Baptist Church, R. C. Alderson, chn. Bldg. Com., Austin, plans by Liebenberg & Kaplan, 51 S. 13 St., Minneapolis. Approx. **$300,000.**

Minn., Minneapolis—SHOPPING CENTER—St. Anthony Village Co., c/o H. S. Gainsley, atty., 934 Andrus Bldg., shopping center, Sunset Ave. between County Road 36 and U. S. Route 8, incl. 84x142 ft. theater, 80x150 ft. supermarket, 60x120 ft. store, and 40x70 ft. store, etc., **$500,000.**

N. J., Atlantic City — STORE — Lerner Shops, Inc., 1326 Atlantic Ave., store, 1420 Atlantic Ave. **$250,000.**

N. Y., Brooklyn—RELIGIOUS INSTITUTION—Yeshivah Taras Emes, Inc., 4407 12 Ave., plans by Samuel Auster, 366 Broadway, 3 story religious institution, 1526-36 52 St. **$250,000.**

●**N. Y., Flushing**—APARTMENT—Green Park, Inc., c/o Seelig & Finkelstein, archts., 153 Pierpont St., Brooklyn, 6 story apartment, Bowne St. and Barclay Ave. **$1,176,000.**

●**N. Y., New York**—APARTMENT—11 Riverside Drive Corp., c/o Sylvan Bien, archt., 565 5 Ave., 16 story apartment, on block bounded by Riverside Dr., West End Ave., W. 73 and W 74 Sts. **$8,000,000.** CD 4/14.

N. Y., New York—SYNAGOGUE—Young Israel of Concourse, 1015 Walton Ave., plans by Frank Grad, 187 Market St., Newark, N. J., 4 story synagogue, 165 St. and Grand Concourse. **$600,000.**

N. D., Williston — HOTEL — Hotel Com., Chamber of Commerce, Williston, hotel. **$640,000.**

O., Cleveland—MONASTERY, CHURCH—Benedictine High School, 10510 Buckeye Rd., plans by J. E. Patter, 1022 Swetland Bldg., 2 or 3 story brick and concrete monastery and church at Buckeye and East Blvd. **$500,000.**

●**Pa., Phila.**—APARTMENT—Corp. c/o G. M. Watkins, Packard Bldg., apartment, shopping center and theatre, City Line and Monument Ave. Approx. **$1,000,000.**

●**Pa., Phila.** — SCHOOL, etc. — Little Flower Roman Catholic Church, 603 Vernon Rd., school and church. Approx. **$500,000** each.

Tenn., Memphis—CHURCH—The Hellenic Orthodox Church, c/o Hulsey & Hall, archts., Sterick Bldg., church. **$250,000.**

Tex., Corpus Christi — SHOPPING CENTER —Ray Peterson, S. Staples St., masonry shopping center. **$300,000.**

●**Tex., Dallas**—SHOPPING VILLAGE—S. & F. Corp., P. O. Box 2399, plans by Consolidated Architects & Engineers, 1005, Forth Worth Natl. Bank Bldg., 6 and 2 story, masonry, rein.-con., steel frame drive in shopping village on Buckner Blvd., in Pleasant Grove paved parking facilities for 1,000 cars, water sys., **$1,750,000.**

●**Tex., Dallas**—STUDENT UNION—Southern Methodist University Mockingbird Lane, plans by Mark Lemmon, Petroleum Bldg., student union bldg. **$1,400,000.** Michael Hare, 147 E. 18 St., New York, N. Y., consult. archt. CD 8/18.

Tex., Houston — HOUSING — H. & D. Constr. Co., 527 N. Adams St., addnl. housing in Santa Rosa Addn. **$250,000.**

Tex., San Antonio—HOUSING—C. Morgan, Jr., 125 Crook St., plans by Van Maltsberger, 2013 Balknap St., housing proj. LaManda and San Angelo Sts. **$250,000.**

Wash., Yakima — CLUB — Eagles Lodge, Yakima, plans by Whitehouse & Price, Washington Trust Bldg., Spokane, 2½ story, brick, masonry 100x140 ft. club. **$250,000.**

Alta., Edmonton—THEATRE—Odeon Theatres, Ltd., 20 Carleton St., Toronto, Ont., theatre, Jasper Ave. **$350,000.**

Ont., Exeter — Exeter Lions Club, C. S. McHaughton, chn., plans by C. B. Dolphin, Bay Grosvenor Bldg., Toronto, 2 story, T-shaped hospital. Approx. **$250,000.**

●**Ont., Ottawa** — OFFICE — E. S. Sherwood, Victoria Chambers, Wellington St., 6 story, structural steel, concrete, brick office, Albert St. near Metcalfe St., Approx. **$1,000,000.** CD 1/2/45.

Ont., Toronto (Scarborough) — SCHOOL — Christian Brothers Training School, Ajax, plans by J. H. Hafta, 96 Bloom St. W., training school, Dawes Rd. near Danforth Ave. Approx. **$650,000.** CD 3/10.

Que., Baie St. Paul—CONVENT—Sisters of Congregation of Notre Dame, 3040 Sherbrooke St. W., Montreal, 5 story, 56x112 ft. convent addn., 16x32 ft. passageway. Approx. **$500,000.** CD 5/25/46.

●**Que., Quebec City**—HOSPITAL—Hospital de St. Jean de Dieu, 667 Blvd. Gouin West, Montreal, 300 bed hospital for incurables in St. Joye Area. Approx. **$2,000,000.**

INDUSTRIAL BUILDINGS

Ill., Chicago—PLANT—S. & C. Electric Co., 4435 N. Ravenswood St., plans by Milton S. Carstens, 1 N. LaSalle St., Chicago, Zone 2, steel, brick, concrete plant, 6615 N. Ridge Ave., **$100,000.**

N. Y., Maspeth—GARAGE—A. Zintbaum, c/o Norman Lederer, archt., 50 W. 53 St., New York, garage and office, 54 St. near Grand Ave. **$150,000.**

O., Columbus — GRAIN ELEVATOR — Ohio Farm Bureau Co-operative, Assn., 245 S. High St., increase grain elevator capacity by 1,200,000 to 2,000,000 bushels, Hamilton Rd.

O., Hamilton—WAREHOUSE—Omar, Inc., c/o A. B. Corn, purch. agt., 1910 Harney St., Omaha, Neb., plans by Luria Eng. Co., engr. and archt., 500 5 Ave., New York, N. Y., branch warehouse. **$125,000.**

●**Tex., Belton**—GENERATING UNITS—Brazos River Transmission Electric Co-operative, Amicable Bldg., Waco, plans by Caramore & Douglass, Inc., 79 E. Adams St., Chicago 3, Ill., two 11,500 kw. steam generating units in Oak Charter plant near here; 211 mi. transmission lines, new sub-station and general plant improvs. **$6,480,000.** REA allot. CD 5/13.

Tex., Houston — WAREHOUSE — Damon Wells, Chronicle Bldg., 100,000 sq. ft. masonry warehouse, on Polk St. between Milby and York. **$650,000.** CD 2/11/48.

Tex., Magnolia — LUMBER MILL — Grogan-Cochran Lumber Mill, Magnolia, reconstructing lumber mill. **$125,000.**

Va., Louisa — MILL — J. S. Purcell Lumber Co. Louisa, rebuilding mill. **$100,000.**

Wis., Milwaukee — WAREHOUSES — Omar, Inc., A. B. Corn, purch. agt., 1910 Harney St., Omaha, Neb., plans by Luria Eng. Co., engr. and archt., 500 Fifth Ave., New York, N. Y., 2 branch warehouses, Approx. **$250,000.**

●**Alta., Edmonton**—MILL—R. O. Sweezey & Assoc., 132 St. James St., Montreal, pulp and paper mill. **$10,0000,000.**

Alta., Edmonton—BAKERY—Weston Bakeries, Ltd., 120 St., bakery. **$500,000.**

Ont., Matachewan—MILL—Matarrow Lead Mines Ltd., 50 King St., Toronto, mill, **$100,000.** E. K. Fockler, co-owner, engr.

Ont., South Porcupine—SHAFT SINKING—Bay Lake Gold Mines Ltd., 73 W. Adelaide St., Toronto, shaft sinking and diamond drilling. **$100,000.**

Que., Granby—FACTORY—Peeters Textile Mills, Ltd., 225 St. Charles St., factory, **$100,000.** C. Schillebeeck, c/o owner, engr.

Que., Lachine—FACTORY—Vi-Lux Candle Mfg. Co. Ltd., St. Joseph, St., candle mfg. factory. **$100,000.**

Sask., Saskatoon—ICE PLANT—Syndicate c/o City Electrical Dpt., Saskatoon, artificial ice plant. **$100,000.**

UNCLASSIFIED

Arkansas—GAS TRANSMISSION LINES—Fort Smith Gas Corp., Ft. Smith, natural gas transmission line and distr. facilities, to serve Pochahontas, **$252,000.**

Calif., Daly City—PARKS—City, City Hall, $100,000 bond election September 27, new parks, R. A. Klassen, 2382 Broadway, Redwood City, engrs.

Conn., Hartford—PARKING AREA—City, A. Sharpe, city mgr. Municipal Bldg., 550 Main St., plans by Lester B. Schneide, 154 Kenyon St., Hartford, concrete underground parking area, Main, Pearl, State and Market Sts., $500,000. CD 2/18/44.

Ga., Columbus—LIGHTING SYSTEM—City, bond election Nov. 16, straight lighting "White Way" system, $100,000.

Ga., Columbus—BASEBALL PARK—City, bond election Nov. 16, baseball park, $150,000.

Ill., Collinsville — DRIVE-IN THEATER — Jablonow-Komm Theaters, Inc., c/o S. L. Jablonow, New Shenandoah Theatre, 2227 S. Broadway, St. Louis, 4, Mo., 1,000 car motion picture drive-in theatre on 150 acre tract on U. S. 40 near Collinsville city limits, incl. screen tower, projection booth, concessions stand, comfort stations, lighting drainage and water facilities, ramps, walks, drives, in-a-car speakers, etc. $100,000.

Ind., Indianapolis — PIPE LINE—Indianapolis Power & Light Co., 17 N. Meridian St., steam pipe line from Perry W. plant near Acme Evans Co. grain elevators at W. Washington St. and White River, to downtown section. $212,000.

●**Iowa and Missouri**—RURAL DISTRIBUTION LINES—Northwest Electric Power Co-operative, Inc., Savannah, Mo. and c/o Ernest C. Wood, pres., Chillicothe, Mo., rural distr. lines, power generating plant, equip. auxiliaries, and appurtenances, power sub stations, etc., northwestern Missouri and southwestern Iowa, $23,000,000.

Ia., Carter Lake—TANK STORAGE FACILITIES—Great Lakes Pipe Line Co., Bryant Bldg., Kansas City, Mo., addnl. tank storage facilities. Approx. $300,000.

Louisiana—RURAL DISTRIBUTION LINES—Beauregard Electric Co-operative, De Ridder, 555 mi. rural distr. lines and other imprvs., Proj. LA-18, Beauregard Parish, $935,000. Goadt & Heft, 820 Union St., New Orleans, consult. engrs. CD 6/6/47.

●**Minnesota**—RURAL DISTRIBUTION LINES—East Central Electric Assoc., Braham, 449 mi. rural distr. line and sys. imprvs. Kanabec Co., $1,100,000.

●**Missouri and Nebraska**—PIPELINE—Great Lakes Pipe Line Co., Bryant Bldg., Kansas City, Mo., 12 in. petroleum pipeline from Kansas City, Mo. to Omaha, Neb. Approx. $2,000,000.

Neb., North Platte — SWIMMING POOL—City, North Platte, $74,240 bond election October 11, swimming pool, $135,000. R. F. Nosky, city engr. CD 8/21/47.

North Carolina — RURAL DISTRIBUTION LINES—Davie-Electric Membership Corp., Mocksville, 70 mi. rural distr. lines, $250,000. REA allot. CD 7/2/46.

North Carolina — RURAL DISTRIBUTION LINES—Edgecombe-Martin Electric Membership Corp., Tarboro, 49 mi. rural distr. lines, Edgecombe Co., $130,000. REA allot. CD 7/9/48.

North Carolina—RURAL DISTRIBUTION LINES—Randolph Electric Membership Co-operative, Asheboro, 76 mi. rural distr. lines, $376,000. REA allot. CD 2/27/48.

North Carolina — RURAL DISTRIBUTION LINES—Roanoke Electric Co-operative, Rich Square, 67 mi. rural distr. lines, $290,000. REA allot. CD 4/22/48.

Ohio—RURAL DISTRIBUTION LINES—Hancock—Wood Electric Co-operative, Inc., North Baltimore, 28 mi. rural distr. line and sys. imprvs., Wood Co. $405,000. CD 11/10/44.

●**O., Youngstown** — OVERHEAD PARKING—City, City Hall, Boardman and Phelp Sts., approx. 4,000 auto overhead parking proj. bounded by Wood and Commerce Sts., Fifth and Wick Aves.

Oklahoma — RURAL DISTRIBUTION LINES — Alfalfa Electric Co-operative, Cherokee, 142.35 mi. rural distr. lines, sys. imprvs., Alfalfa Co., $165,000. Inland Eng. Co., Box 768, Ritzville, Wash., consult. engr.

●**Oklahoma, Iowa and Minnesota**—PIPELINE—Great Lakes Pipe Line Co., Philtower Bldg., Tulsa, Okla., 700 mi. gasoline and refined products pipeline from Ponca City, Barnsdalle, Tulsa and Okmulgee, Okla., to parallel the existing Great Lakes pipeline from these refining centers to Des Moines, Ia., and Minneapolis, Minn., $37,500,000.

Okla., Elk City—GAS PIPELINE—Consolidated Gas Utilities Corp., Braniff Bldg., Oklahoma City, 20 mi. 12¾ in. natural gas pipeline from Elk City field to Carpenter pump station. $100,000.

Pa., Pittsburgh—SWIMMING POOL—City, Bureau Parks & Recreation, City County Bldg., plans by Marlier, Wolf & Johnstone, Republic Bldg., concrete swimming pool Ream Playground, $200,000; swimming pool, Bloomfield Recreation Field. $250,000. CD 11/29/45.

R. I., Warwick—RECREATION GROUP—County Amusements, Inc., c/o Salvatore Romano, 31 Forest Ave., Cranston, recreation group, incl. drive in theater, skating rink and swimming pool, Post Rd. $200,000.

S. C., Columbia—SWIMMING POOL—City, City Hall, plans by G Thomas Harmon, 3350 Millwood Ave., Negro swimming pool and bathhouse in Seegars Park $200,000. CD 8/8.

●**Texas**—OIL PIPELINE—Humble Pipe Line Co., Humble Bldg., Houston, 375 mi. 18 in. welded joint crude oil pipeline, from Kemper (near Texon) to Satsuma, 20 mi north of Houston, incl. 7 pumping stations along the route, $18,000,000. A. E. Pecore, c/o owner, engr CD 8/12.

Texas—RURAL DISTRIBUTION LINES—Wood County Electric Co-operative, Inc., Quitman, addnl. rural distr. lines, sys. imprvs., Wood Co $200,000. CD 10/26/48.

●†**Texas**—PARKS, etc.—U. S. Eng., 1114 Commerce St., Dallas, construct parks in Whitney Dam area, incl. recreational facilities, camping facilities, grading, and drainage, etc. Approx. $400,000; public docks, rest rooms, cabins, throughout the Dam zone, $375,000••• construct road surrounding Lake Whitney and addnl. roads, approx. 300 mi. $600,000.

Tex., Angelton—LIGHT, POWER DISTRIBUTION SYS.—City, Angelton, electric light and power distr. sys. $150,000. Garrett Engr. Co., 5008 Almeda St., Houston, consult engr.

Tex., Falfurias—GAS SYSTEM—City, natural gas sys. imprvs., extns. $150,000. The Marvin Turner Engineers, Nalle Bldg. Annex, Austin, consult engrs.

Tex., Galveston — TOURIST COURT — Athanasiou, Inc., 712 17 St., brick tourist court-restaurant, concrete slab fdn. $250,000.

Tex., Port Arthur—SWIMMING POOLS—City, fein-con, swimming pools, 16 St., City Park, $60,000; Lions Park, $75,000; Gilham Circle Park, $80,000. Charles P. Smith, Orange and George J. Schaumburg, Beaumont, consult. engrs. CD 7/21.

†**Wash., Port Angeles**—BOAT BASIN—U S. Eng., 4735 E. Marginal Way., Seattle, Zone 4, extens. small boat mooring basin. $412,980. Col. E. C. Itschner, dist engr.

Wash., Tacoma — STADIUM — School Bd., Central School, repairing athletic stadium at Stadium High School, $300,000.

●**Philippine Islands, Bataan** — SHIP YARDS—Republic of the Philippines, Manila, National Ship Building Yard, southern part of Bataan, approx. at entrance of Manila Bay $8,000,000. National Economic Council, Manila, engr

Ont., St. Thomas—SPORTS FIELD—Municipality, development sports field in Pinafore Park, baseball and football grounds, etc. $100,000. W. C. Miller, City Hall, city engr.

"GUNITE" CONCRETE (Since 1915)

FOR • STEEL PLATE LINING • STEEL ENCASEMENT • BUILDING NEW WALLS • LINING WATER RESERVOIRS TUNNELS AND SEWERS • PLATE LINING OF STEEL STACKS, BUNKERS, DUCTS • REPAIR OF DISINTEGRATED CONCRETE AND MASONRY • CANAL, DITCH AND DRAIN LINING

GUNITE CONCRETE & CONST. CO.
1301 Woodswether Rd., Kansas City 6, Mo.
District Branch Offices
R. N. Turner, Dist. Mgr., 228 No. LaSalle St., Chicago 1, Ill.; B. H. Mueller, Dist. Mgr., 6625 Delmar Blvd., University City, (St. Louis), Mo.; Philip D. Barnard, Dist. Mgr., 2036 Addison, Houston 5, Tex.
Branch Offices: Denver, Dallas, New Orleans
See our catalog in Sweet's

McKIERNAN-TERRY
JOB-PROVEN
PILE HAMMERS

McKiernan-Terry Pile Hammers are job-proved and time-tested . . . the choice of engineers and contractors on major construction projects throughout the world. Available in a standardized line of 10 double-acting hammers, 5 single-acting hammers and 2 double-acting extractors. Write for free Bulletin.
Also builders of coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment, and specially designed machinery.

McKIERNAN-TERRY CORPORATION
Manufacturing Engineers
13 Park Row New York 7, N. Y.

DRILLING CONTRACTORS
DIAMOND AND SHOT CORE BORINGS — DRY SAMPLE BORINGS
Foundation Testing for Bridges, Dams and all Heavy Structures
Also
Manufacturers of Diamond and Shot Core Drills, Accessories and Equipment
SPRAGUE & HENWOOD, Inc.
Scranton, Pa. Dept. E, U. S. A.

CONSTRUCTION REPORTS—Second Section

WATER SUPPLY

BIDS ASKED

September 20

Ia., Pleasanton—City, City Hall, water works imprvs. and extns., $35,000. Patera Engrg. Inc., 625 E. U. Bldg., Des Moines, engr.

Ont., Ottawa—Rd. Control City Hall, fabrication supply, delivery and jointing steel pipe specials for 48-in. watermain, from Slidell St. to Queen St. West. Pumping Station. Approx. $350,000. W. E. MacDonald, c/o owners, engr. CD 7/21.

LOW BIDDERS

Fla., Miami Springs—Town, Miami Springs, distribution system, from Boyce Co., 504 Pennsylvania Ave., Clearwater, **$125,252.** CD 8/10.

CONTRACTS AWARDED

Calif., Long Beach—City, 25 m.g.d. water treatment plant, to Griffith Co., 1060 S. Broadway, Los Angeles, **$621,000.** Est. $660,000. Bids 8/11, awarded 8/25. CD 8/18, under LB.

●S. C., Greenville—City, City Hall, WW imprvs. Sec. 1, to Arthur Pew Constr. Co., Buckhead Theater, Atlanta, Ga., **$327,216***** Sec. 2, to Peden Constr. Co., Greenville, **$39,197** ***furnishing pipe to American Cast Iron Pipe Co., 2930 N. 16 St., Birmingham, Ala., **$905,401.** Grand total $1,271,814. Bids 8/23. CD 8/3.

Va., Vienna—Town, Jack Nichols, mayor, Park St. and Maple Ave., municipal water and sewer sys., incl. complete pumping wells, tanks, disposal plant, pump houses, 8 mi. sewer lines, 8 mi. waterlines, 2,000 capacity disposal plant, 200,000 gal. overhead tank to J. Bles, McLean,, **$459,074.** Bids 8/4. CD 7/28.

SEWERS, WASTE DISPOSAL

LOW BIDDERS

Conn., Stratford—Town, H. B. Flood, town mgr., Town Hall, Contr. 13, sewage treatment plant, incl. pumping station, equip, grit and screen chambers, comminutor chambers, trunk and lateral sewers, from Cecio Brothers, 31 Grigg Ave., Greenwich, **$174,850.** CD 7/27.

N. M., Las Vegas—City, City Hall, Aug. 22, sewer lines and sewage plant imprvs., incl. 2,100 lin. ft. sewer lines and sewage treatment plant and 7,582 ft. 6, 8, 10, 12 and 15 in. sewer line extens. from Western Constr. Co., Box 1404, Hobbs, **$53,181** and **$84,222** respectively. Est. $50,000 each. CD 8/15.

CONTRACTS AWARDED

Ore., Garibaldi—City, City Hall, sewerage collection sys., incl. 21,000 ft. 12 to 16 in. concrete pipe and sewage treatment plant to W. M. Kinney, Tillamook, **$108,351.** Est. $125,000. G. R. Boatwright, Oregon Bldg., Salem, engrs. Awarded 8/22.

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

September 13	**September 16**
Iowa	**Alabama**
South Carolina	**September 20**
September 14	**Texas**
New York	**Wisconsin**
Tennessee and	**September 21**
Arkansas	**California**
September 15	**Louisiana**
New Jersey	
Virginia	

LOW BIDDERS

Florida—State Hy. Dpt., San Juan Hotel, Orlando, two separated 24 ft. lanes 12 ft. service road bit. 1.28 mi. R 212, Pablo Creek Bridge approaches, State Proj. Job 7219-111, Duval Co., from B. B. McCormick & Sons, Jacksonville Beach, **$136,158.** CD 8/17.

Tennessee—State Hy. Dpt., Nashville, Aug. 26, from C. F. Rule Constr. Co., 217 - 13 Ave. N., Nashville, overhead bridge and approaches over N. C. & St. L. Ry. Route 1 west of Sawyers Mill, 0.237 mi. Benton Co., **$147,210** ***2 bridges 0.094 mi. Route 13 between Perry-Humphreys county line and Waverly, Humphreys Co., **$91,696*****2 bridges and approaches, 0.464 mi. at Meadowville State Route 10 between Trousdale county line and Lafayette, Macon Co., **$52,687.** CD 8/8.

CONTRACTS AWARDED

Pennsylvania—State Hy. Dpt., Harrisburg, bit. surf. 6.98 mi. T.R. 26, one box culvert, 1 rein.-con. arch over Hoover Run; 1 rein.-con. arch over branch of James Creek; 2 rein.-con. bridges over branch of James Creek, 1 rein.-con. bridge over Hartslog Creek, one I-beam bridge over branch of Crooked Creek, Markleburg Boro, Huntingdon Co., to County Constr. Co., 25 E. Main St., Carnegie, **$713,492.** Bids 8/19. CD 8/24, under LB.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

September 13	**September 20**
South Carolina	**New Jersey**
September 14	**Texas**
New York	**Wisconsin**
September 15	**September 21**
New Jersey	**California**
New York	**Louisiana**
September 16	**Texas**
Alabama	
Minnesota	
Pennsylvania	

LOW BIDDERS

Calif., Long Beach—Title Insurance & Trust Co., 433 S. Spring St., Los Angeles, streets, curbs, gutters, etc., to Cox Bros., Constr. Co., Box 36, Stanton, **$169,569.** Adams & Ellis, 306 S. Peck Rd., El Monte, engrs.

●Illinois—State Hy. Dpt., Springfield, c. conc. 7.07 mi. U. S. Rt. 66, to J. C. O'Conner & Sons, Inc., 2104 Miner St., Fort Wayne, Zone 6, Ind., **$789,359;** c. conc. 6.83 mi. on U. S. Rt. 66, to Bushman Constr. Co., 4638 Mill Creek Parkway, Kansas City, Mo., **$711,746,** both Montgomery Co. Bids 8/29. CD 8/26, under LB.

Tex., Fort Worth—Tarrant Co., Courthouse, road reconstr., Precinct 1, **$70,000;** road reconstr., surf., Precinct 2, **$85,000*****road drainage, reconstr., Precinct 3, **$75,000*****road surf., bridge, Precinct 4, **$110,000.** Force-account. Grand total $340,000.

●Quebec—Province of Quebec, Quebec City, road construction Laterriere, Chicoutimi Co., to Champlain Constr. Inc., 301 Park Ave., Montreal, $1,186,000.

CONTRACTS AWARDED

Florida—State Hy. Dpt., San Juan Hotel, Orlando, Aug. 26, grading, paving 11.456 mi. State Rd. 341 between State Rd. 26 and Bell, Proj. S-223 (1) and S-224 (1), Gilchrist Co., from Y. E. Whithurst & Sons, Williston, **$104,-140*****grading, paving 2.177 mi. State Rd. 15 from 2.2 mi. south of Deland City limits to Deland City limits Proj. FI-016-1 (1), Volusia Co., from Brinson Constr. Co., 51 St. and E. Broadway Ave., Tampa, **$103,339*****grading, paving 0.691 mi. city street in Orlando, Proj. F-022-2 (5), Orange Co., from Hubbard Constr. Co., Orlando, **$63,388.** CD 8/17.

†Idaho—Bureau P. Rds., General Services Admin., 609½ Bannock St., Boise, Aug. 25, grading 0.842 mi. North Payette Hy., Kootenai National Forest, Proj. 7-A6, Unit 1, from General Constr. Co., 3840 Iowa St., Seattle, Wash., **$369,580.** CD 8/4.

Kansas—State Hy. Dpt., Dodge City, grading, 7.040 mi. S. P. 61-78 F 689 (6) Reno Co., to E. W. Gieger, Leavenworth, **$83,020*****grading 4.969 mi. S. P. 8 S 122 (3), Butler Co., to San-Ore Constr. Co., McPherson, **$61,900***** grading 7.415 mi. S. P. 50S-24 F 115 (7), Part I Edwards Co., to C. E. Gray, Emporia, **$60,-707.** Grand total $205,627. CD 7/29.

Kansas—State Hy. Dpt., Hays, grading 6.026 mi. S. P. 40-84 FI 301 (16) Pt. I, Russell Co., to Adrian L. Schweitzer, Osborne, **$96,162;** c. conc. 6.061 mi. S. P. 40-26 FI 301 (20) Pt. I, Ellis Co., to Koss Constr. Co. 205 Farm Bureau Bldg., Des Moines, Ia., **$327,326.** CD 8/4.

Kansas—State Hy. Dpt., Pratt, Aug. 18, c. conc. 2.888 mi. S. P. 54-45 FA 341 H (4), Kinman Co., c. conc. 8.026 mi. S. P. 54-76 F 341 (19), Pratt Co., from Koss Constr. Co., 205 Farm Bureau Bldg., Des Moines, Ia., **$154,620** and **$391,307** respectively. CD 8/4.

Louisiana—State Hy. Dpt., Baton Rouge, Aug. 24, aggregate or soil cement base course 7.385 mi. timber trestle bridge, Oak Grove-Port Vincent Hy. State Rt. 87, S. P. 260-01-05, Ascension Parish, ***stabilized course, bit. surf. 6 mi. Bayou Ganche Rd., State Rt. 669, S. P. 845-07-04, St. Charles Parish, from Stevens & Co., Whitney Bldg., New Orleans, **$160,876** and **$126,378** respectively ***grade, surf. 3.162 mi. two 19 timber trestle bridge, repairs, Int. Rt. 34, Washington Parish Line, Hy. State Rt. 468, S. P. 850-07-03, St. Tammany Parish, from Carruth Const. Co., Louisiana National Bank Bldg., Baton Rouge, **$52,094.** CD 8/17.

Md., Baltimore—Mayor & City Council, City Hall, Aug. 24, sheet asph. resurf. streets, Contr. 1014, from Potts & Callahan Paving Co. Inc., 2801 Falls Rd., **$144,897.** CD 8/17.

Minnesota—State Hy. Dpt., St. Paul, Aug. 26, from Alexander Constr. Co., 4141 Hiawatha Ave., Minneapolis, grav. base, bit. stabilization 8.8 mi. S. P. 4906-66 (TH 27-71), **$5,912;** c. conc. 1.6 mi. S. P. 7306-22 TH 23-3) and S. P. 0503-15 (TH 23-3) **$58,530;** grav. base, road mixed bit. surf. 10.8 mi. S. P. 8212-04 (TH 97-97) **$85,826*****from C. Holander & Sons Co., 2933 Pleasant Ave., Minneapolis, topsoiling, sodding, seeding 1.6 mi. S. P. 2714-18 (TH 12-10) and S. P. 2715-26 (TH 12-107), **$75,649*****from Linquist Olson & Co., Cambridge, Minn., grading, cattle pass 7.7 mi. S. P. 0112-13 (TH 65-5) S. P. 0112-20 (TH 65-5) and S. P. 3110-03 (TH 65-5), **$123,374*****from A. T. Nolan, 20 North 2 St. Minneapolis, grading, grav. surf. 2.5 mi. Bridges, 6505 and 6507, S.P. 1116-02 (TH 371-19) S. P. 1116-05 (TH 371-19) and S. P. 1116-06 (TH 371-19), **$108,077*****from Megarry Bros., St. Cloud, grav. base, plant mixed bit. surf. 12.4 mi. S. P. 7320-14 (TH 152-129), **$97,192***** from Kimmes Constr. Co., Hastings, **$94,200,** grading, 4.3 mi. box culvert, and cattle passes, S. P. 2701-02 (TH 5-121), **$94,200.**

●North Dakota—State Hy. Dpt., Bismarck, Aug. 26, traffic service gravel etc., 9.042 mi. State Hy. No. 1, south of Valley City, FAP Proj. No. F-171, (2), Barnes Co. and traffic service gravel, etc. 9.08 mi. State Hy. No. 11, from 2 mi. south of Oakes east 9 mi. FAP Proj. No. F-692 (1), Dickey and Sargent Counties from Schultz & Lindsay Constr. Co., 621 1st Ave. N., Fargo, **$94,467** and **$107,602** respectively***traffic service gravel, etc., 19.559 mi. State Hy. No. 7 from county line west of Hurdsfield to junction with U. S. Hy. 52, FAS Proj. No. S-210 (2), Wells Co. and grading, etc. 16.967 mi. County Rd. from near Benedit to near Sawyer, FASP No. S-370 (1), Ward Co. from Archie Campbell, Warwick, **$214,394** and **$88,065** respectively.

b. conc. surf. etc. 8.364 mi. State Hy. No. 5, from Cavalier to Hamilton, FAP Proj. No. F-366 (6), Pembina Co. from Butler Constr. Co., 901 N. 6 St., Grand Forks, **$219,426*****b. conc. surf., etc. 21.313 mi. State Hy No. 20 from Jamestown north, FASP No. FAS-S-382 (5) and S.P 382 B, Stutsman Co. from J. W. Craig Co., 1814 N. E. California St., Minneapolis, Minn., **$134,891*****gravel surf., etc. 11.887 mi. **State Hy. No. 37 from Garrison west, FASP** No. FAS-57 (2) and FAS-272 (5), McLean Co. from Murphy & Smestad Constr. Co., Fargo, **$169,980.** CD 8/11.

●Tennessee—State Hy. Dpt., Nashville, Aug. 26, grading, drainage, surf., incl. 4 bridges 7.4 mi. secondary hy. 8019, Weakley Co. from R. E. Martin Co., 317 5 Ave. S., Nashville, **$160,150*****strengthening crushed stone base and surf. 4.944 mi. State Hy. No. 9 from junction of Route 25 to point near Macon Co. line, Trousdale and Macon Counties and bit. road mix surf. and seal on 8.5 mi. sect. of State Hy. 138, from south edge of Mercer extending to State Hy. 1, Madison Co., from Inter-State Constr. Co., 3rd Natl. Bank Bldg., Nashville, **$51,242** and **$53,757** respectively.

crushed stone surf. incl. 4 bridges 4.8 mi. Sumner county line to Happy Hollow Rd., Sumner Co. and penetration macad base and bit. seal coat incl. 1 bridge 4.7 mi. sect. of Secondary Hy. 6219 from Ruena Vista Pike extending eastward to the junction of State Hy. No. 6 at Inglewood, Davidson Co. from McDowell & McDowell, 4805 Wyoming Drive, Nashville, **$124,381** and **$182,582** respectively ***gravel surf. incl. 12 bridges 1.8 mi. State Hy. 76, Haywood Co. from C. F. Rule Constr. Co., 217 13 Ave. N. Nashville, **$371,628*****grading, drainage, surf. incl. one bridge 4.987 mi. State Hy. 13, Perry Co. from Burns & Baker, Nashville, **$213,329*****c. conc. wid'n. and construct curb and gutter and sidewalks on State Hy. 16 from Rolling Fork River Bridge at Winchester, ¼ mi. toward Decherd, Franklin Co. and grading, drainage, paving 0.8 mi. State Hy. 9, Campbell Co. from Foster & Creighton, American Natl. Bank Bldg., Nashville, **$63,988** and **$233,321** respectively.

grading, drainage, paving 5.8 mi. State Hy. 3 from Memphis City limits to Wolf River Bridge, Shelby Co. from Lehman-Roberts Co., 1098 Wilson St., Memphis, **$89,232*****strengthening of gravel base and surf. 6.1 mi. Rural Road 8087, Hardin Co., from J. B. Michael Co., 1021 Heywood St., Memphis, **$59,861*****grading, drainage, surf. 2 secondary highway projects, 22.3 mi. Hy. 8078, Fayette Co., from Memphis Stone & Gravel Co., Exchange Bldg., Memphis, **$129,115.**

bit. materials reasurf. 1.6 mi. one mi. of W. Lane St. in Shelbyville and reasurf. another sect. of Rubber Mill Rd. from Shelbyville to U. S Rubber plant, Bedford Co., from Wright Contrg. Co., 504 Ave., Columbus, Ga., **$51,404*****reasurf. 3.8 mi. Secondary Hy. 8039 from junction of Route 22 at Clarksville extending to Yuma; 12.15 mi. of non-system road from junction of Route 1 at Huntingdon to Hollow Rock, Carroll Co. from Paul Davis Constr. Co., Savannah, **$86,704*****gravel or chert surf. 4.004 mi. Secondary Hy. 6197 from Route 6 at St. Joseph to point near Iron City, Lawrence Co. from C. A. Thompson Co., Centerville, **$54,594*****grading, drainage incl. 3 bridges 4.9 mi. Secondary Hy. 8059, Madison Co. from W. A. Ledbetter Co., Lexington, **$87,323.**

bit. materials wid'n and resurf. on sect. of State Hy. 6 from north end of the Harpeth River bridge at Franklin extending to Old Hickory Blvd. at Brentwood, Williamson-and Davidson Counties and bit. resurf. 27.319 mi. State Route 24 from east city limits of Nashville extending to west city limit of Lebanon; 23.594 mi. State Route 24 from east city limits of Lebanon extending to Smith-Putnam county line, Davidson, Wilson and Smith Counties from Warren Bros. Roads Co., 1st Natl. Bank Bldg., Birmingham, Ala., **$182,985** and **$293,358** respectively***wid'n. resurf. 5.82 mi. Hy. 37 and Main St. in Bluff City, Carter and Sullivan Counties from Wesco Paving Co., Volunteer Bldg., Chattanooga, **$67,677*****grading, drainage, surf. 13.091 mi. Secondary Hy. 2406, Knox Co. from R. B. Tyler & Co., 1446 Levering St., Louisville, Ky., **$109,704.** CD 8/8.

†Virginia—Bureau Pub. Roads, General Services Admin., 1440 Columbia Pike, Arlington, Proj. 6A-17, Part A, George Washington Memorial Parkway, Arlington Co. from Suburban Engr. & Constr. Co., Box 187, Branchville, Md., **$128,500.**

EARTHWORK, WATERWAYS

BIDS ASKED

September 21

Ia., Turin—Soil Conservation Service, 440 N. Port Washington Rd., Milwaukee, Wis., flood control works, Croy Minor Watershed, Little Sioux Basin, near here.

September 22

†**Indiana** — U. S. Eng., 830 W. Broadway, Louisville, Zone 3, Ky., emergency bank protection, Brevoort Levee, Wabash River, Knox Co., Serial No. CIVENG 15-029-50-50.

LOW BIDDERS

†**Arizona**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Aug. 23, synchronous motors for Wellton-Mohawk Pumping Plants 1 and 3, Spec. 2763, from Electric Products Co., 1725 Clarkstone St., Cleveland, O., **$147,978.** CD 8/10.

†**Illinois**—U. S. Eng., 826 U. S. Court House and Custom House, St. Louis 1, Mo., Aug. 25, levees, Prairie du Rocher, Illino's and vicinity (Proj. Item III-A), (Edgar Lakes and Prairie du Rocher and Modoc Drainage and Levee Dist), Randolph Co., east bank of Mississippi River, opposite approx. miles 124.5 to 126 on Mississippi River, also mouth of Ohio River, Serial No. Eng. 23-065-50-8, from Lohr Bros., Columbia, **$151,997.** CD 8/12.

†**Iowa**—U. S. Eng., 1709 Jackson St., Omaha, Neb., dike constr., McCook Lake, from McGeorge Contg. Co., ft. Nebraska St., Pine Bluff, Ark., **$280,044.**

†**Louisiana**—U. S. Eng., foot Prytania St., New Orleans, Aug. 10, approx. 520,000 cu. yd. hydraulic earthwork for enlargement, West Atchafalaya Basin Protection Levee, Serial No. Eng., 16-047-50-13, Iberia Parish, from McWilliams Dredging Co., 860 St. Charles St., New Orleans, **$373,828.** Est. $296,400. CD 7/27.

†**Virginia**—U. S. Eng., foot of Front St., Norfolk, Aug. 16, oil circuit breakers, Buggs Island Proj., Roanoke River, Mecklenburg Co., Eng-44-110-49-214, from General Electric Co., 1 River Rd., Schenctady, N. Y., **$220,060.** CD 6/17.

CONTRACTS AWARDED

●**Pennsylvania**—Dpt. Forests & Waters, Education Bldg., Harrisburg, dredging Schuy kill River between Black Rock Dam and Norristown, to American Dredging Co., 12 S. 12 St., Phila., **$2,210,830.** CD 8/19, under LB.

AIRPORTS AND AIRBASES

BIDS ASKED

September 15

N. Y., Idlewild—TAXIWAYS, APRONS—At office Chief Engineer, of Port of New York Auth., 111 8th Ave., New York, Zone 11, paving taxiways and aprons for Hangars No. 3, No. 4 and No. 5, at New York International Airport, Contr. NYA-24. Plans deposit $25. CD 4/27/44.

September 30

†**Alaska, Fairbanks**—AIRCRAFT SHOP—U. S. Eng. (APO 942, c/o PM, Seattle, Wash.), Anchorage, Alaska, 70x190 ft. rein.-con., steel frame and metal insulated panel aircraft shop at Ladd Air Force Base, near here, Inv. No. S95-507-50-5. Plans deposit $25.

LOW BIDDERS

●†**Calif., Point Mugu**—TECHNICAL BUILDINGS—Officer in Charge of Construction, U. S. Naval Air Missile Test Center, Point Mugu, Aug. 25, technical buildings incl. 60,000 sq. ft. test bldg., 2 story 30,000 sq. ft. project bldg., and 2,200 sq. ft. transmitting bldg., from Alliance Constr. Co., 35 N. Raymond Ave., Pasadena, **$1,191,070.** CD 8/4.

†**O., Dayton** — ROTARY WING TESTING FACILITIES—U. S. Eng., P. O. Box 59, Louisville 1, Ky., Aug. 25, construct rotary wing testing facilities at Wright-Patterson Air Force Base, Serial No. Eng-15-029-50-3, from George W. Timmons, 5811 Olentangy River, Columbus, **$329,924.** CD 8/1.

CONTRACTS AWARDED

●**O., Cleveland** — TEST CHAMBERS — National Advisory Committee for Aeronautics, Brookpark Rd., 2 altitude test chambers, to Treadwell Constr. Co., Midland, Pa., **$490,446.** Est. $500,000. Awarded 8/9. CD 6/20.

PUBLIC BUILDINGS

BIDS ASKED

September 21

Mass., Stoneham — HOUSING—Town of Stoneham Housing Auth. Town Hall, housing, Proj. Stoneham 200-1, Approx. $250,000. Plans deposit $100., Drummey-Duffill, Inc., 80 Boylston St. Boston, archt., CD 2/16.

September 23

Ark., Conway—HALL—Arkansas Teachers College, Conway, Bernard Hall for Women alterations and addns., $100,000. Bruce R. Anderson, Wallace Bldg., Little Rock, archt. CD 6/3.

September 30

†**Alaska, Ketchikan** — TRANSMITTER BLDG.—U. S. Eng., (A.P.O. 942, c/o PM, Seattle Wash.) Anchorage, Alaska, 31x90 ft. rein.-con. transmitter bldg., air-conditioned. Inv. No. S95-507-50-3. Plans deposit $25.

†**Alaska, Kodiak** — RECEIVER BLDG.—U. S. Eng. (A.P.O. 942, c/o PM, Seattle, Wash.) Anchorage, Alaska, 13x21 ft. rein.-con. receiver bldg., electrically heated. Inv. No. S95-507-50-4. Plans deposit $25.

LOW BIDDERS

●**N. Y., New York**—SCHOOL—Bd. Educ., 49 Flatbush Ave. exten., Brooklyn, Zone 1, Aug. 23, P. S. 18 at Morris Ave. and E. 149 St. from Psaty & Fuhrman, Inc., 369 Lexington Ave., Zone 17, **$1,321,000.** CD 8/1.

●**N. Y., Syracuse**—WAR MEMORIAL—Onondaga Co., R. W. Sollinger, purch. agt., Courthouse, rejected bids July 15, Onondaga County War Memorial Auditorium. Est. **$3,500,000.** Will re-advertise. CD 6/22.

CONTRACTS AWARDED

Minn., Fairmont—SCHOOL—Bd. Educ., T. A. Fancher, clk., general contract 2 elementary schools, to Standard Constr. Co., 607 Hamm Bldg., St. Paul, **$588,390.** Bids 8/24. CD 8/4.

COMMERCIAL BUILDINGS

BIDS ASKED

September 13

N. M., Farmington—HOTEL—Avery Hotel, Farmington, 4 story masonry hotel addn. and alterations. $250,000. Max Flatlow, 213 S. 3 St., Albuquerque, engr.

September 21

Minn., Virginia — HOTEL — Virginia Hotel Co., H. A Ebmer, secy., 5 story basmt., 109x 122 ft. brick, rein.-con. Coates Hotel, $750,000. Damberg & Damberg, Virginia, archts., A. G. Wahlberg, Virginia, constr. engr.

SOON LETS CONTRACT

●**O., Portsmouth** — HOSPITAL — Mercy Hospital, c/o Sisters of the Third Order of St. Francis, Portsmouth, soon lets contract, rein.-con., brick, steel, stone hospital addn. Approx. **$1,000,000.** R. V. McCann, 84 South 6 St., Minneapolis 2, Minn., archt; Maenolo & Quick, 4908 Delmar Blvd., St. Louis 8, Mo., assoc. archts.

CONTRACTS AWARDED

●**Ariz., Phoenix**—HOSPITAL—St. Mary's Hospital, Phoenix, 120 bed hospital addn., to M. M. Sundt Constr. Co., Tucson, **$1,097,066.**

●**Calif., Los Angeles**—DORMITORY—University of Southern California, 3551 University Ave., 4 story H-shaped brick, concrete womens dormitory, to Stanton Reed Co., 816 W. 5 St., Los Angeles, **$814,275.** Est. $1,240,000. Bids 8/26, awarded 8/26. CD 8/2.

●**D. C., Wash.**—SYNAGOGUE—Adas Israel Congregation, 6 and I Sts. N. W., synagogue, Quebec and Porter Sts. and Connecticut Ave. N. W., to M. Cladny Constr. Co., 635 F St., **$1,250,000.** Frank Grad & Sons, 1633 Connecticut Ave. N. W., Wash., D. C., archts.

●**Md., Baltimore**—HOUSING—Catonsville Estates Inc., 508 St. Paul St., two hundred twenty-four 2 story bsmnt., 16x28 ft. brick residences, row type, off Frederick Rd., Ibylhis Dr. and Marion Dr., graded parking lots and playgrounds, separate contracts, **$1,500,000.**

●**Mich., Hancock**—HOSPITAL—Sisters of St. Joseph of Carondelet, Hancock, 9 story steel hospital, to James Leck Co., 211 S. 11 St., Minneapolis, Minn., **$2,000,000.**

●**N. J., Bergenfield**—HOUSES—A. B. & Saul B. Meister and Herbert Katz c/o Percy Simon, archt., 362 Cedar Lane, Teaneck, 200 houses to be known as Crestwood Ranch Homes on tract south of W. Broad St., Owner builds, Approx. **$1,500,000.**

●**N. Y., Great Neck**—HOUSES—Samuel Berger, David Berczner & Assoc., c/o A. H. Salkowitz & Edwin C. Kline, archts., 37-60 82 St., Jackson Heights, 150 houses on site on Baker Hill Rd. between Middle Neck and Station Rds. Owner builds. **$2,000,000.**

●**N. Y., Hicksville** — HOUSES — Arnold A. Slade, c/o John W. Burton, archt., 163-18 Jamaica Ave., Jamaica, 500 one family houses on 100 acre tract at South Oyster Bay Rd. and Nassau Ave. Owner builds. **$3,500,000.**

●**N. Y., Irvington**—APARTMENT PROJECT—Maurice & George Levin, c/o Kelly & Gruzen, 80 5 Ave., New York, 1,744 family apartment proj. on 22 acre site bounded by Eastern Parkway, Grove St., Berkeley Terrace and Maple Ave. Owner builds. **$20,000,000.**

●**N. Y., New York**—LABORATORIES, etc.—Presbyterian Hospital, 168 St. and St. Nicholas Ave., cancer research laboratories and Vanderbilt clinic bldgs. addn. and alterations to Gens Jarboe, Inc., 101 Park Ave. Approx. **$2,000,000.** CD 9/10/48.

●**N. Y., New York**—LAW CENTER—New York University, Washington Square, law center bldg. on Washington Square South, to John Lowry, Inc., 52 Vanderbilt Ave., **$3,000,000.** CD 9/22/48.

●**N. Y., West Hempstead**—HOUSES—Charles Goldstein & Sons, c/o Stanley H. Klein, archt., 89-31 - 161 St., Jamaica, 100 one family houses to be known as Guilford Homes at Nassau Blvd. and Dogwood Ave. Owner builds. **$1,000,000.**

●**Tex., Houston** — APARTMENTS — Carl C. Sharp and Bayou Apartments, Inc., 6604 Mercer St., 296 apartments, for Negroes. Owner builds. Approx. **$1,500,000.** CD 8/19.

Wis., Milwaukee — APARTMENT — Martinique Realty Co., 229 E. Wisconsin Ave., Zone 2, 8 story 50x103 ft. concrete, steel, brick apartment, steam heating, to Lake Constr. Co., 229 E. Wisconsin Ave., Zone 2. Approx. **$475,000.** CD 7/20.

INDUSTRIAL BUILDINGS

CONTRACTS AWARDED

●**Ark., North Little Rock**—PLANT ADDN.—Visking Corp., East 8 St., North Little Rock, present mfg. plant addn., to Ditmars Kickmann & Pickens, Gazette Bldg., Little Rock, Approx. **$1,000,000.** CD 8/17.

●**N. Y., Buffalo**—STAMPING PLANT—Ford Motor Co., 3000 Schaefer St., Dearborn, Mich., concrete substructure for 1 story concrete, steel 1,000,000 sq. ft. stamping plant and supply bldg. in Hamburg Twp., near here to Darin & Armstrong, 2041 Fenkell St., Detroit, Mich. Total est. **$10,000,000.** CD 8/19.

O., Cleveland — BAKERY — National Biscuit Co., 449 W. 14 St., New York, N. Y., 1 story 300x300 ft. brick, steel bakery, offices, warehouse to G. A. Rutherford Co., 2725 Prospect Ave., Approx. **$750,000.** Awarded 8/22. CD 7/29.

N. C., Raleigh—PASSENGER STATION—Southern Ry. System, J. B. Akers, ch. engr., McPherson Square, Wash. 13, D. C., brick passenger station, Cabarrus St., to J. M. Thompson & Co., 304 S. Salisbury St., **$100,000.** Bids 8/16. CD 8/9.

Okla., Oklahoma City—WAREHOUSE—Standard Stores, Inc., 1248 W. Main St., Zone 3, warehouse and office to Charles H. Moreau, 733 N.E. 17 St., Zone 5, **$70,000.** Est. $75,000. Bramblet & Baldwin, Petroleum Bldg., Zone 2, archts. Awarded 8/22.

Tex., Port Arthur—PLANT—Sabine Packing Co. Inc., Fort Arthur, seafood storage plant. Own forces. Approx. **$70,000.**

Tex., San Antonio—WAREHOUSE—O'Kent Floor Covering Co., 411 N. St. Marys St., stock and storage warehouse to D. G. Janssen, 211 Insurance Bldg. **$86,121.** Bids 8/15. CD 8/23 under LB.

Va., Radford—PLANT—Old Colony Box Co., Radford, box mfg. plant to Associates, Inc., Marion. Approx. **$75,000.** Bids 8/15. CD 8/8.

Wash., Chehalis—WAREHOUSE ADDN.—Lewis Pacific Dairymen's Ass'n., Chehalis, general contract, 1 story rein.-con. 70x140 ft. and second story 35x60 ft. warehouse addn. to Construction Engineers and Contractors, 801 Port of Tacoma Rd., Tacoma, Approx. **$150,000.** Bids 7/6. CD 6/29.

Wash., Vancouver—PLANT—Aluminum Co. of American, Gulf Bldg., East Pittsburgh, Pa., 2 story 40x200 ft. rein.-con. plant administration bldg., to The Austin Co., 16112 Euclid Ave., Cleveland, Ohio, **$200.000.**

Wis., Adams — FACTORY, etc. — Regal Products Co., Adams, 1 story 40x304x12 ft. steel factory and 1 story 40x64x12 ft. concrete fdn. and floor office, own forces, **$115,000.** Steel-Bilt Structure, Inc., 1433 Regent St., Madison, engr. CD 6/22.

Wis., Green Bay—FACTORY ADDN.—Northwest Engr. Corp., 239 Howard Ave., 3 story 90x122 ft., steel, concrete, brick factory addn., steam heating, to Selmer Co., 305 E. Walnut St., Green Bay, Approx. **$70,000.**

UNCLASSIFIED

BIDS ASKED

September 22

●†**Quebec**—RAILWAY RELOCATION—Robert H. Saunders, chn., c/o Hydro Electric Power Comn. of Ontario, 620 University Ave., Toronto, Ont., 37.5 mi. railway grading, and structures, Canadian Pacific Railway relocation, La Cave Development, incl. 1,622,000 cu. yd. earth excavation, 459,000 cu. yd. rock excavation, Baiselere, Campeau, Gendreau, Approx. $3,000,000. Plans deposit $25.

LOW BIDDERS

●†**South Dakota**—GENERATORS—U. S. Eng., 1709 Jackson St., Omaha, Neb., Aug. 25, generators for Fort Randall Dam Proj., Serial No. Eng-25-066-49-254 from Westinghouse Electric Corp., 117 N. 13 St., Omaha, Neb., **$4,304,351.** CD 6/28.

CONTRACTS AWARDED

N. Y., Jones Beach—MARINE STADIUM—Long Island State Park Comn., Babylon, marine stadium on Zachs Bay at Jones Beach State Park to Lenart Constructors, Inc., 101 Park Ave., New York, **$738,300.** Skidmore, Owings & Merrill, 5 E. 57 St., New York, Zone 22, archts. CD 8/29/45.

Proposal Advertisements see pp. 59, 60, 61, 62

OFFICIAL PROPOSALS

Bids: September 16, 1949 (343)

Construction of Pumping & Sewage Treatment Units

Sealed proposals will be received by the Chairman and Members of the Gloucester City Sewerage Authority at the City Hall, Gloucester City, N. J., until 8:00 o'clock P.M., Eastern Daylight Saving Time, on the Sixteenth day of September, 1949, for the following Contracts for the Construction of the Pumping and Sewage Treatment Units of the Sewage Treatment and Refuse Incineration Plant embracing the following contracts:

Contract No. 1. Piling
Contract No. 2 General Construction
Contract No. 3 Mechanical
Contract No. 4 Plumbing
Contract No. 5 Heating
Contract No. 6 Ventilating
Contract No. 7 Electrical
Contract No. 8 Sanitary and Intercepting Sewers
Contract No. 9 Incinerator
Contract No. 10 Chimney

at which time and place they will be publicly opened and read.

Copies of drawings, specifications and other contract documents are on file and open to public inspection at the office of the City Engineer, City Hall, Gloucester City, N. J. Complete sets of such documents may be obtained from Andrews & Gieseke, Inc., Engineers, 1405 W. Erie Avenue, Philadelphia 40, Pa., upon deposit of $50.00 for each set. If the documents are returned in good condition within ten days after the opening of bids, $35.00 of the deposit for each set will be returned to each actual bidder; and $25.00 of the deposit for each set will be returned to each non-bidder, the balance being retained to defray the actual cost of reproduction of the sets of documents. If the documents are not returned within the time stated, the entire amount of deposit will be forfeited.

Each bidder must deposit with his bid, security in an amount of not less than five percentum (5%) of his base bid, in the form and subject to the conditions provided in the Instructions to Bidders.

No bidder may withdraw his bid within thirty (30) days after the actual date of the opening thereof.

The Gloucester City Sewerage Authority reserves the right to waive any informalities or to reject any or all bids.

GLOUCESTER CITY SEWERAGE AUTHORITY
Norman W. Theckston, Secretary.

Bids: September 22, 1949 (347)

Construction of Pipe Line

COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN DISTRICT COMMISSION

Sealed proposals will be received at the office of the Metropolitan District Commission, 20 Somerset Street, Boston, Mass., until 1:00 P.M., Eastern Daylight Saving Time, Thursday, September 22, 1949, and then publicly opened for Contract 170 for the construction of a 24-inch pipe line to the Hyde Park Pumping Station, in the City of Boston, Mass. The work consists of furnishing and laying about 10,000 feet of 24-inch pipe and includes the building of appurtenant structures such as manholes, culverts and other work appurtenant to the pipe line construction. Each bidder shall deposit cash or a certified check as security in an amount not less than $8,000. A bond in at least the full amount of the contract will be required of the successful bidder to secure the faithful performance of the contract, and for the payment of all persons performing labor or furnishing materials in connection therewith. Special attention is called to the requirements as to conditions of employment to be observed and to minimum rates of wages prescribed by the State Commissioner of Labor and Industries. A schedule of such rates is included in the contract and a copy may be obtained at the office of the Metropolitan District Commission. The information for bidders, and the prescribed forms of proposal, contract, and performance bond, and plans and specifications may be examined at the above address, and copies thereof obtained from Karl R. Kennison, Chief Engineer of the Construction Division, upon the deposit of $10, to be refunded only to bidders or others returning them within ten days after the opening of bids. The site of the work and the existing conditions at and near the pipe line may be seen by applying at the office of the Head Construction Engineer, 107 Charles Street, Auburndale, Mass. The Commonwealth reserves the right to waive any informality in, or to reject, any or all proposals. No bidder may withdraw his bid within thirty days after the actual date of the opening thereof. A proposal which includes for any item a bid that is abnormally low or high may be rejected as unbalanced.

WILLIAM T. MORRISSEY, Commissioner
September 1, 1949

Bids: September 30, 1949 (328)

Reinforced Concrete Culvert

Notice to Contractors

Extension Poor House Run Flood Control Project
York, Pennsylvania

Sealed bids for the construction of a reinforced concrete culvert ten feet (10') high and eight and one-half feet (8½') wide inside by ten hundred seventy feet (1070') long, will be received by City Council in City Hall, City of York, York County, Pa. until 9:30 A.M., E.S.T., September 30, 1949, and then publicly opened and read aloud at a regular meeting of Council.

The Information for Bidders, Form of Contract, Plans and Specifications may be examined at the office of the City Engineer, York, Pa. Copies thereof may be obtained at the said office upon payment of twenty dollars ($20.00) for each set. Any bidder upon returning such set in good condition, will be refunded his payment and any non-bidder upon returning such set promptly will be refunded fifteen dollars ($15.00).

The City Council of the City of York, Pa. reserves the right to waive any informalities in, or to reject any or all bids.

A certified check made payable to the order of City Treasurer, York, Pa. in the amount of five per cent (5%) of the base bid, must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within five (5) days thereafter, execute such contract and furnish a performance bond in the amount of the contract and satisfactory to the City Council.

An additional bond of fifty per cent (50%) of the accepted bid is required as security for the payment of all persons performing labor and furnishing materials in connection therewith, in accordance with "Third Class City Law".

No bidder may withdraw his bid within thirty (30) days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for opening of Bids or authorized postponement thereof.

Fred A. Schiding
Director of Streets & Public Improvements, York, Pennsylvania

Dated: August 19, 1949
William E. Weigle
City Engineer

Bids: September 27, 1949 (340)

Excavation, Construction, & Planting

SEALED PROPOSALS will be received by the President of the Levy Court of New Castle County, Room 133, Public Building, Wilmington, Delaware until 11:00 A.M., Eastern Standard Time on September 27th, 1949 and at that time and place, publicly opened for contracts involving the following approximate quantities:

CONTRACT SD-22
McDaniel Crest
Brandywine Hundred
New Castle County

275 cu. yds. Excavation
195 tons Waterbound Macadam
55 tons Bituminous Concrete
1,080 sq. yds. Cement, Concrete Gutter
290 cu. yds. Topsoil
0.40 acres Seeding
160 sq. yds. Sodding

Attention is called to the Special Provisions in the proposal, specifications and contract agreement.

Performance of contract shall commence within ten (10) days after the execution of the contract and be completed as specified.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the County Engineer.

Each proposal must be accompanied by a surety bond, certified check, or money, to the amount of at least ten (10) per centum of the total amount of the proposal.

The envelope containing the proposal must be marked "Suburban Development Contract No. ....."

The Contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

The right is reserved to reject any or all bids.

Complete sets and plans may be obtained after September 13, 1949 upon the receipt of two dollars ($2.00) which will not be refunded.

Make checks payable to the Levy Court of New Castle County.

LEVY COURT OF NEW CASTLE COUNTY
By: John I. Cahalan, County Engineer

Bids, September 22, 1949 (345)

Furnishing & Delivering Gate Valves, Airvalves, etc.

COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN DISTRICT COMMISSION

Sealed proposals will be received at the office of the Metropolitan District Commission, 20 Somerset Street, Boston, Massachusetts, until 1:00 P.M., Eastern Daylight Saving Time, Thursday, September 22, 1949, and then publicly opened, for Contract No. 178 for furnishing and delivering gate valves, airvalves, aircocks, pressure reducing valves, Venturi meters and appurtenances for aqueducts and pipe lines in the cities of Boston and Quincy and the towns of Milton and Brookline, Massachusetts. There are five groups of items which may be awarded as a whole or as separate contracts, but no single group will be further subdivided and awarded to more than one bidder. Each bidder may submit a price on one or more of these groups, but must quote on each item of the particular group or groups bid. Each bidder shall deposit cash or certified check as security in the amount of $1500 for Group A, $100 for Group B, $25 for Group C, $150 for Group D and $50 for Group E. A bond in at least full amount of the contract will be required of each successful bidder to secure the faithful performance of the contract, and for the payment of all persons performing labor or furnishing materials in connection therewith. The information for bidders, forms of proposal, contract, and performance bond, and plans and specifications may be examined at the above address, and copies thereof obtained from Karl R. Kennison, Chief Engineer of the Construction Division, upon deposit of $5, to be refunded only to bidders or to others returning them within ten days after the opening of bids. The Commonwealth reserves the right to waive any informality in, or to reject, any or all proposals. No bidder may withdraw his bid within thirty days after the actual date of the opening thereof. A proposal which includes for any item a bid that is abnormally low or high may be rejected as unbalanced.

WILLIAM T. MORRISSEY, Commissioner
September 1, 1949

(Continued on page 60)

CONTRACTORS WATCH THIS SECTION

for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

(Continued from page 59)

Bids: September 22, 1949 (346)

Construction of Pipe Line Connection

COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN DISTRICT COMMISSION

Sealed proposals will be received at the office of the Metropolitan District Commission, 20 Somerset Street, Boston, Mass., until 1:00 P.M., Eastern Daylight Saving Time, Thursday, September 22, 1949, and then publicly opened for Contract 186 for the construction of a pipe line connection for Blue Hills Reservoir, in the cities of Boston and Quincy, and in the Town of Milton, Mass. The work consists of constructing about 31,000 feet of cut-and-cover aqueduct, using pipe which will be generally 48-inches in inside-diameter; includes the building of appurtenant structures such as manholes, culverts, and other works appurtenant to the pipe line construction. Each bidder shall deposit security in an amount not less than $45,000. A bond in at least the full amount of the contract will be required of the successful bidder to secure the faithful performance of the contract, and for the payment of all persons performing labor or furnishing materials in connection therewith. Special attention is called to the requirements as to conditions of employment to be observed and to the minimum rates of wages prescribed by the State Commissioner of Labor and Industries. A schedule of such rates is included in the contract and a copy may be obtained at the office of the Metropolitan District Commission. The information for bidders, and the prescribed forms of proposal, contract, and performance bond, and plans and specifications may be examined at the above address, and copies thereof obtained from Karl R. Kennison, Chief Engineer of the Construction Division, upon the deposit of $10, to be refunded only to bidders or others returning them within ten days after the opening of bids. The site of the work and the existing conditions at and near the aqueduct line may be seen by applying at the office of the Head Construction Engineer, 107 Charles Street, Auburndale, Massachusetts. The Commonwealth reserves the right to waive any informality in, or to reject, any or all proposals. No bidder may withdraw his bid within thirty days after the actual date of the opening thereof. A proposal which includes for any item a bid that is abnormally low or high may be rejected as unbalanced.

WILLIAM T. MORRISSEY, Commissioner
September 1, 1949

Bids: September 26, 1949 (348)

Replacement of Sprinkler Piping System in Seaboard Building No. 2

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK
CONTRACT PN-27

Sealed proposals for the replacement of the sprinkler piping system in Seaboard Building No. 2 at Port Newark, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, N. Y., until 11:30 A. M. Monday, September 26, 1949, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Chief Engineer, and copies will be furnished upon deposit of $10.00 per set. The deposit will be remitted if the documents are returned in good condition, not later than thirty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman,
Chairman.

New York, September 8, 1949.

Read the Official Proposal Columns of EXGINEERING NEWS-RECORD This Week and Every Week

OFFICIAL PROPOSALS

Bids: September 14, 1949 (333)

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of (1) the Highway Law and special provisions therein for projects financed with federal aid funds, (2) the Canal Law (3) the Public Buildings Law, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Wednesday, September 14, 1949 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract containing 1 to 15 sheets is $5.00; 16 to 30 sheets, $10.00; over 30 sheets, $20.00. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

DISTRICT No. 1

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		G. L. Nickerson, Dist. Engr., 353 Broadway, Albany, N. Y.				
Greene	RC49-97	Palenville-Catskill, S. H. 8231	0.54	Asph. Conc. Optional	$4,500 Plans $5	$80,000.00
Rensselaer	RC49-110	Center Berlin-Petersburg, S. H. 1421 Stephentown-Center Berlin S. H. 8163	0.18	8" Cem. Conc. Pavt. 22' Wide R-of Conc. Slab Br. 2-14½' Span	$3,500 Plans $5	$60,000.00
Warren	FARC49-96	Warrensburg-Chestertown, Pt. 1, S. H. 5157 Proj. FI-490(6)	0.97	8" Cem. Conc. Pavt. 24'-40' Wide = 0.95 mi. Misc. Work = 0.02 mi.	$12,000 Plans $5	$223,000.00
		DISTRICT No. 2				
		L. Ketchum, Dist. Engr., 109 No. Genesee Street, Utica, N. Y.				
Oneida	———	Eberts Bridge Over Black River Reservoir	0.06	Asph. Conc. Optional 2 Sp. I-Beam 64' 7" & 38' 3"	$1,700 Plans $5	$31,703.50
		DISTRICT No. 3				
		Wm. Robinson, Dist. Engr., Weigh Lock Bldg., Syracuse, N. Y.				
Onondaga & Madison	MT49-2	Mohawk Thruway (Thompson Rd. to Chittenango Creek)	5.91	Grad. & Struct. & F. C. 2 Alpha I-Beams 92' 4" Span Ea. 1 I-Beam 50' Span Alpha = $541.80	$120,000 Plans $20	$2,093,000.00
		DISTRICT No. 5				
		C. R. Waters, Dist. Engr., 65 Court Street, Buffalo, N. Y.				
Erie	OT49-7 SS49-26 SS49-27 SS49-28	Ontario Thruway Cleveland Drive Marvvale Drive George Urban Boulevard	1.10	9" 2 Crse. Cem. Conc. Pavt., 24', 74' Wide = 0.77 mi. Asph. Conc. Opt. = 0.11 mi. Fdt. Crse. Rob Grav. = 0.10 mi. Misc. Work = 0.12 mi. Alpha I-Beam 2 Spans 40', 2 Spans 60' Alpha I-Beam 2 Spans 44', 2 Spans 66' Alpha I-Beam 2 Spans, 47', 2 Spans 70' Alpha = $966.00	$55,000 Plans $10	$977,000.00
		DISTRICT No. 6				
		H. F. Brumm, Dist. Engr., 30 West Main Street, Hornell, N. Y.				
Steuben, Chemung & Schuyler	F. C. 49-3	Flood Control Project in Dist. No. 6	———	Furnish & Erect. R. O. W. Markers	5% of Bid Plans $5	$10,451.00
		DISTRICT No. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Westchester	FARC49-100 FARC C49-101	Peekskill-Annsville Br., S. H. 1850; Peekskill-Fishkill, Pt. 1, S. H. 5147; Bear Mountain Br.: East Approach, S. H. 9297; Peekskill-Annsville Bridge Connection C47-4 Project No. F&U394(9)	1.56	9" Cem. Conc. Pavt. 24', 48' & 60' Wide = 0.78 Mi. 9" Cem. Conc. Pavt. Var. Width = 0.02 Mi. Bit. Mac. Ty. 1, Pen. Method = 0.76 Mi. 4 Sp. Deck Gird. 280' Total Rig. Frame Conc. Arch 26' 6" Span	$40,000 Plans $20	$766,000.00
Rockland	RC49-99	Knapps Corners-Nyack, S. H. 5178	———	Repairs to Br. No. 2	$100 Plans $5	$1,900.00
		DISTRICT No. 9				
		F. W. Donovan, Dist. Engr., 71 Frederick Street, Binghamton, N. Y.				
Broome	FAC49-8	Binghamton City: Vestal Avenue Bypass (West City Line to Pennsylvania Ave.) Proj. U1019(2)	1.81	9" Cem. Conc. Pavt. 48' Wide = 1.68 Mi. Asph. Conc. Opt. = 0.13 Mi.	$70,000 Plans $10	$1,214,000.00
		DISTRICT No. 10				
		J. J. Darcy, Dist. Engr., Montauk Hwy. at Little E. Neck Rd., Babylon, L. I., N. Y.				
Bronx	FAGM C49-9	Elim. of Grade Xing of N. Y. C. R. R. With Melrose Ave. & E. 165th Street Proj. FAGM 922F(1) Off	0.21	Misc. Pavt. = 0.08 Mi. Gr. Sep. Struct. = 0.13 Mi.	$35,000 Plans $20	$616,000.00
		Total Letting	12.34	Miles		
			.59	Bridges to be Painted		$6,483,354.50
			3,448,325	Sq. Yds. } Waterproofing		
			25,500	Gals. }		
		BRIDGE PAINTING WORK				
		DISTRICT No. 1				
		G. L. Nickerson, Dist. Engr., 353 Broadway, Albany, N. Y.				
Albany, Greene, Saratoga, Rensselaer & Washington	RC49-91	Br. No. 3, S. H. 886; Br. No. 1, S. H. 8482; Br. No. 1, S. H. 8488; Br. No. 1, S. H. 5040; Br. No. 2, S. H. 490; Br. No. 1, S. H. 9311; Br. No. 1, S. H. 1938; Br. No. 4, S. H. 1685; Br. No. 1, S. H. 1835; Br. No. 1, S. H. 9016; Dunn Bridge, S. H. 9111; Troy-Menands Br., S. H. 9112; 112th St. Br.; Congress Street Br.	———	Painting Bridges	$6,000 Plans $5	$116,000.00
		DISTRICT No. 2				
		L. Ketchum, Dist. Engr., 109 No. Genesee Street, Utica, N. Y.				
Montgomery	RC49-80	Br. No. 1, Fultonville Vill.; Fonda Vill., S. H. 864: Br.	———	Painting Bridges	$1,100 Plan. $5	$20,000.00

(Continued on page 61)

OFFICIAL PROPOSALS

(Continued from page 60)

		No. 1, Fort Plain Vill.: River St., S. H. 1903; Br. No. 1, Canajoharie-Palatine Bridge, S. H. 8527–8528			
		DISTRICT No. 3			
		WM. ROBINSON, Dist. Engr., Weigh Lock Bldg., Syracuse, N. Y.			
Seneca & Wayne	RC49–82	Seneca Falls Vill., S. H. 5100, Br. No. 1; Geneva-Waterloo, S. H. 5087A, Br. No. 1; Newark-Lyons, S. H. 8028, Br. No. 1	—— Painting Bridges	$800 Plans $5	$15,000.00
		DISTRICT No. 6			
		H. F. BRUMM, Dist. Engr., 30 West Main Street, Hornell, N. Y.			
Allegany & Steuben	RC49–98	Br. No. 4, S. H. 5204; Br. No. 2, S. H. 0349; Br No 1 A, S. H. 5130; Br. No. 4, S. H 8253	—— Painting Bridges	$600 Plans $5	$11,000.00
Chemung & Tioga	RC49–81	Southport, Pt. 2, S. H. 28, Br. No. 1; Waverly-Owego, Pt. 3, S. H. 5257, Br. No. 10; Owego-Candor, Pt. 2, S. H. 5471, Br. No. 10	—— Painting Bridges	$500 Plans $5	$10,000.00
		DISTRICT No. 8			
		JAS. BIXBY, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.			
Orange, Rockland & Ulster	RC49–83	Br. No. 3, S. H. 42; Br. No. 5, S. H. 499; Br. No. 1, S. H. 1539; Brs. Nos. B-1 & B-2, S. H. 5480; Br. No. 2, S. H. 8330; Br. No. 1, S. H. 689; Br. No. B-2, S. H. 5388; Br. No. 1, S. H. 5714; Br. No. 1, S. H. 8049A; Brs. Nos. 1 & 2, S. H. 141; Br. No. 3, S. H. 229; Br. No. 1, S. H. 419; Br. No. 3, S. H. 1419; Br. No. 1, S. H. 5590C; Br. No. B-1, S. H. 5601; Br. No. 1, S. H. 8398	—— Painting Bridges	$4,500 Plans $5	$82,000.00
		DISTRICT No. 9			
		F. W. DONOVAN, Dist. Engr., 71 Frederick Street, Binghamton, N. Y.			
Broome, Delaware, Schoharie, Sullivan	RC49–89	Br. No. 1, S. H. 5338; Br. No. 1, S. H. 1241; Br. No. 1, S. H. 5412; Br. No. 1, S. H. 375; Br. No. 1, S. H. 8254; Br. No. 1, S. H. 5393; Br. No. 1, S. H. 5671; Br. No. 1, S. H. 8187; Br. No. 1, S. H. 5458; Br. No. 1, S. H. 5286; Br. No. 1, S. H. 5195; Br. No. 3, S. H. 5234; Br. No. 1, S. H. 8449; Br. No. 1, S. H. 8494	—— Painting Bridges	$4,000 Plans $5	$73,000.00
		WATERPROOFING PAVEMENT WORK			
		DISTRICT No. 1			
		G. L. NICKERSON, Dist. Engr., 353 Broadway, Albany, N. Y.			
Albany, Greene, Rensselaer, Columbia, Saratoga, Schenectady & Washington	RC49–102	Eight Contracts in District 562,532 No. 1	Waterproof. Pavt.	$700 Plans $5	$13,000.00
		DISTRICT No. 2			
		L. KETCHUM, Dist. Engr., 109 No. Genesee Street, Utica, N. Y.			
Herkimer, Madison, Montgomery, Oneida	RC49–103	Seven Contracts in District 539,000 No. 2	Waterproof. Pavt.	$650 Plans $5	$12,000.00
		DISTRICT No. 3			
		WM. ROBINSON, Dist. Engr., 301 E. Water Street, Syracuse, N. Y.			
Cayuga, Onondaga, Oswego, Wayne	RC49–104	Six Contracts in District No. 3 559,223	Waterproof. Pavt.	$700 Plans $5	$13,000.00
		DISTRICT No. 4			
		A. R. MULLIGAN, Dist. Engr., Barge Canal Term., Rochester, N. Y.			
Genesee, Monroe, Ontario	RC49–105	Nine Contracts in District 531,815 No. 4	Waterproof. Pavt.	$650 Plans $5	$12,000.00
		DISTRICT No. 5			
		C. R. WATERS, Dist. Engr., 65 Court Street, Buffalo, N. Y.			
Chautauqua Cattaraugus, Erie	RC49–106	Five Contracts in District 237,500 No. 5	Waterproof. Pavt.	$300 Plans $5	$5,300.00
		DISTRICT No. 7			
		R. F. HALL, Dist. Engr., 444 VanDuzee Street, Watertown, N. Y.			
Lewis & Jefferson	RC49–107	Five Contracts in District 91,805 No. 7	Waterproof. Pavt.	$110 Plans $5	$2,000.00
		DISTRICT No. 8			
		J. S. BIXBY, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.			
Columbia, Dutchess, Orange, Putnam, Rockland, Ulster, Westchester	RC49–108	Thirteen Contracts in District 447,400 No. 8	Waterproof. Pavt.	$550 Plans $5	$10,000.00
		DISTRICT No. 9			
		F. W. DONOVAN, Dist. Engr., 71 Frederick Street, Binghamton, N. Y.			
Broome, Chenango, Delaware, Otsego, Tioga, Schoharie	RC49–109	Ten Contracts in District 479,050 No. 9	Waterproof. Pavt.	$600 Plans $5	$11,000.00
		DISTRICT No. 10			
		J. J. DARCY, Dist. Engr., Montauk Hwy. at Little E. Neck Rd., Babylon, L. I., N. Y.			
Nassau & Suffolk	NSP49–2 SSP49–4	Northern State Pkwy. & Southern State Pky.	Waterproof. Pavt.	$600 Plans $5	$10,000.00

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by cash, draft or certified check payable to the order of "State of New York, Commissioner of Taxation & Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, et al as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

OFFICIAL PROPOSALS

Bids: September 20, 1949 (341)

Road Construction

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 25, SECTION 34F

Construction of Route 25, Section 34F, from Delancy Street to South End of Viaduct, Resurfacing South Bound Roadways, City of Newark, Essex County, Federal Project FI-185(9). Length 0.45 mile.

Estimated:

14,535 sq. yds. Removal Granite Block Pavement

3,250 cu. yds. Conc. Pavement Surface—Reinforced

12,200 lbs. Rein. Steel at Expansion Joints

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J., on Tuesday, September 20, 1949, at ten o'clock (10:00 A.M. — EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27, of the Revised Statutes of New Jersey and supplements and by Section 1, Public Laws 834, 80th Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 305-309 Washington Street, Newark, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all unskilled labor employed on this contract shall be 65¢ per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be 75¢ per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.25 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

CONTRACTORS
Watch this Section
for New Projects

Publish your announcement thru the "Proposals Section" of Engineering News-Record and get their bids.

U. S. Government

(Continued from page 61)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2775) will be received by Bureau of Reclamation, Arapahoe Nebraska, until September 30, 1949, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, canal lining, and structures, station 676+00 to station 1012+52, Cambridge Canal, and earthwork and structures for drains and channel changes, Cambridge Unit, Frenchman-Cambridge Division, Nebraska, Missouri River Basin Project. The work is situated near Arapahoe, Nebraska. Principal items in four schedules are approximately: Excavation 590,000 cu. yds.; furnishing cement and reinforcement and placing 3,500 cu. yds. concrete; furnishing and laying 3,000 lin. ft. concrete pipe; furnishing and installing 30,000 lbs. gates and miscellaneous metalwork; and other work. Time allowed for completion will be 365 days. For particulars, address Bureau of Reclamation, Arapahoe, Nebraska; or Building 1-A, Denver Federal Center, Denver, Colorado.

MICHAEL W. STRAUS, Commissioner. (344)

OFFICIAL PROPOSALS

Bids: September 20, 1949 (342)

Road Planting

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

PLANTING—ROUTE 4 PARKWAY, SECS. 2F & 4F

Planting on Route 4 Parkway, Sections 2F and 4F, from Port Reading Railroad to Inman Avenue, Woodbridge Township, Middlesex County.

Estimated:
- 174 units Trees—Deciduous
- 392 units Trees—Small & Flowering
- 247 units Trees—Coniferous
- 7,305 units Shrubs — Deciduous & Evergreen
- 983 units Vines and Ground Cover

Bids for the above will be received at the office of the State Highway Department, Room 102, State House Annex, Trenton, N. J. on Tuesday, September 20, 1949, at ten o'clock (10:00 A.M. — EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 102, State House Annex, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: Spencer Miller, Jr.
State Highway Commissioner

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT: BUSINESS: **"OPPORTUNITIES"** :EQUIPMENT :USED OR RESALE

UNDISPLAYED RATE

(Not available for equipment advertising)

$1.20 a Line, minimum 4 lines. To figure advance payment count 5 average words as a line.
INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.
Box Numbers in care of our New York, Chicago and San Francisco Offices count as one additional line.
Replies are forwarded each day as received at each of the offices mentioned without additional charge.
Discount of 10% is allowed if full payment is made in advance for 4 consecutive insertions.

DISPLAYED RATE

The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rate quoted on request.
An advertising inch is measured ⅞ inch vertically on one col., 3 col.—30 inches to a page. E.N.R.

STAFF ENGINEER

Electrical or Mechanical Engineer with degree and three to five years oil refinery experience. Must be familiar with design and construction of oil refinery process equipment, electric power plants and related projects. Field experience necessary.

This position is on the regular staff of a major oil company.

Write giving age, education, marital status and detailed experience resume.

Box 308-M
Radio City Station
New York 19, New York

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

(Additional Position Vacant ads on opposite page)

WANTED—ENGINEERS, Architects, Draftsmen experienced in the design of sewers, sewage treatment plants, water treatment plants and industrial buildings. Also engineers to supervise construction. State qualifications, experience. Salary requirements and date available. P-1155, Engineering News-Record.

UNUSUAL OPPORTUNITY — Graduate Civil Engineer, age 35 or under, wanted for responsible permanent position with large manufacturer of surveying and drafting instruments and associated equipment and supplies located in Chicago. Must have ability to quickly understand products of the type indicated and write accurate catalog descriptions, instruction sheets, use and care information, etc. Previous technical writing experience desirable but not necessary. Salary $3600 to $5000, depending upon length of training required. Box 9674, Engineering News-Record.

WANTED: AN experienced Engineer for a City of 22,000 population, salary $4,000.00 Address: Carl E. Pratt, Sr., Mayor, Hastings, Nebraska.

WANTED: EXPERIENCED Structural steel draftsman, location Oklahoma. Reply P-9547, Engineering News-Record.

WANTED: EXPERIENCED structural Draftsman for precast concrete plant. Must be able to prepare accurate shop drawings of a precast concrete roof deck on structural steel frame. Steady work. Good pay. State qualifications and salary desires. Arnold Stone Company, Greensboro, North Carolina.

ESTIMATOR—REINFORCING Bar Fabricator operating in the southeast requires services of man capable of making accurate Bar Estimates and also capable of managing Estimating Department. Have openings for Reinforcing Bar Detailers. Write, giving age, availability, experience, capabilities and salary expected. P-9833, Engineering News-Record.

POSITIONS WANTED

CONSTRUCTION SUPERINTENDENT And engineer, 17 years practical experience all phases public, industrial, commercial bldgs., bridge and road construction, married, clean record, prefer mid-west location. Address PW-9710, Engineering News-Record.

POSITION AVAILABLE

Civil Engineer, 35 to 45 years old to supervise project engineers on building work, waste disposal and general civil engineering design for chemical company located in East. Furnish detailed resume of experience and education, also salary requirement, in reply.

P-9634, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

WANTED

BLOCK MACHINE SALESMAN to organize sales and distribution, advertising and servicing of patent new small brick and brick and block and tile making machine amongst farmers, small builders and brick and block makers throughout nation. State age, experience and remuneration required.

SW-9833, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

POSITIONS WANTED

CONSTRUCTION ACC'T: 32, married, 4 yrs. overseas construction experience, office mgr., paymaster. 4½ yrs. domestic experience accountant, full charge bookkeeper, speaks some Spanish. If desired: wife, steno-secty experience, speaks French, German, Greek. Foreign preferred. PW-9826, Engineering News-Record.

STRUCTURAL ENGINEER — registered Indiana and Michigan, other registrations pending. Thirteen years Structural Engineering and Architectural experience includes power plants —commercial and industrial structures—stores and homes. Will consider working on fee—hourly-partnership-or salary basis. Write PW-9627, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT — 28 years in complete charge of Projects for general contractors. Consisting of: Dirt and Concrete dikes and dams, Flood Walls, Pumping stations, paving, bridges, sewers, sewage disposal, water treatment and industrial plants, power houses and coffer dams. At present in charge of paving project. Married and will go anywhere. Available soon. PW-9632, Engineering News-Record.

EQUIPMENT SUPERINTENDENT: master mechanic, 25 years experience heavy construction, large spreads, 13 yrs. foreign experience. Can be used as equipment consultant. Prefers foreign work—anywhere. Harbors, airports, railroads, roads, industrial plants, etc. PW-9673, Engineering News-Record.

CAPABLE MAN desires connection with structural fabricating shop. Interested only in capacity of Chief Draftsman. PW-9614, Engineering News-Record.

PROJECT MANAGER: General or Job Superintendent: 30 years experience; heavy and light construction; housing; apartments; schools; hospitals; office buildings; chemical; industrial plants; powerhouses; handle all trades including mechanical and allied work. PW-8779, Engineering News-Record.

GENERAL SUPERINTENDENT and Engineer, 20 years experience in complete charge of projects consisting of: Dirt moving, sewers, highways, bridges, mass concrete, caissons, tunnels and foundations. Available October 1, 1949, will go anywhere. PW-9812, Engineering News-Record.

BUILDING CONSTRUCTION Superintendent, age 46, member A.S.C.E., 20 years experience, desires position with contractor or an Architect's representative. Prefer South but will consider any location. PW-9787, Engineering News-Record.

DRAFTSMAN, STRUCTURAL, B.C.E., P.E., 6 years experience; neat, fast, accurate, diligent; has time-saving ideas, seeks complicated work. Expert in descriptive geometry and engineering mathematics. PW-9837, Engineering News-Record.

(Continued on opposite page)

POSITIONS WANTED
(Continued from opposite page)

CONTRACTOR'S FIELD Engineer, 25 yrs. experience in laying-out everything from property line to fin. grading on all sorts of jobs. Expert on cross-sections both field and office. Some knowledge of drafting computing and taking off quantities. PW-9626, Engineering News-Record.

CONSTRUCTION EXECUTIVE — Graduate Civil Engineer, long experience management and supervision all types civil engineering and construction projects in U. S. and abroad. Excellent business-getter. Available Oct. 1. PW-9861, Engineering News-Record.

DRAFTSMAN 3 years of layout in plan and section of process piping. Thoroughly exp'd in methods of fabricating piping. Knowledge of structural steel. Also 3 years of layout and detailing of mechanical equipment. Some college, resident of N.Y.C., consider traveling. PW-9689, Engineering News-Record.

MECHANICAL ENGINEER, eleven years plant maintenance and production manufacturing for large shipbuilder, fourteen years installation and testing on Naval ships, wants position. PW-9862, Engineering News-Record.

PARTY CHIEF, Instrumentman or Topographer available for immediate employment. Desire employment west of Mississippi, but will consider any location. Have new car for use in field. Keith Jared, 2645 South Roosevelt, Wichita 10, Kansas.

STRUCTURAL ENG.—buildings, bridges indetermin. Systems—Europ. graduate long experience. 1 year U.S.A., Moderate wages. PW-9887, Engineering News-Record.

CIVIL ENGR., single, 28, grad. Ill. Inst. of Tech., Aug. 1947. Field and Office Engr. County Highway Dept. six months. Railroad surveying—running levels, and line and grade also computer, (foreign, nine months). Structural drafting and RR track layout (power plants). Desires job as field engineer with established contractor; preferably middle west. PW-9886, Engineering News-Record.

SELLING OPPORTUNITY WANTED

SALES ENGINEER. Member ASME & AISE moving to Florida. Would like to represent machinery manufacturer or will work for established distribution. SA-9779, Engineering News-Record.

BUSINESS OPPORTUNITY

For Sale

Around a million feet high class stumpage, ¾ yellow pine, 1/6 white pine, 1/6 mixed hardwoods, location N. C. 10 miles from C.C.&O. and little farther from main line of Southern. Low production costs. Yellow pine is exceptional. Sell by boundary. BO-9809, Engineering News-Record.

FOR SALE
CONSULTING ENGINEERS
PRACTICE AND EQUIPMENT
Largely Municipal In Pacific Northwest
BO-9767, Engineering News-Record
68 Post St., San Francisco 4, Calif.

Notice to Advertisers

Because of the Holiday, Labor Day, September 5th, the "Searchlight" pages of the

September 15th Issue of

ENGINEERING NEWS-RECORD

close for press earlier than the usual weekly closing time.

The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

FINAL CLOSING TIME
Displayed & Undisplayed Ads,
Friday, September 2nd

Proposals,
Thursday, September 8th

Man with Knowledge of Materials

Excellent opportunity with old established Chicago firm for an engineer or materials man able to identify, name, describe in detail, and classify a wide variety of materials, supplies, equipment and spare parts, such as are used on a large construction project and in the operation of a good sized municipality.

Should have engineering degree or equivalent training, and have had wide experience in material specifications or material control. Salary open.

Willingness to undertake occasional assignments at any location at home or abroad highly desirable.

In first letter give, in confidence, age, details of education, and complete employment record with dates and rates of pay. Our staff knows of this advertisement.

Write: **P-9659,** ENGINEERING NEWS RECORD
330 W. 42nd Street, New York 18, N. Y.

MECHANICAL ENGINEER

Graduate Engineer with a minimum of 15 years recent experience in the design and layout of large fuel oil storage and transmission facilities.

SENIOR CIVIL ENGINEER

Specialized in Earth Dam design and construction, familiar with soil mechanics including sand drain practice.

For Work On Guam

Send complete record of background to:

PACIFIC ISLANDS ENGINEERS
Frederic R. Harris, Inc.
Blanchard & Maher
Keller & Gannon

Ferry Bldg., San Francisco, Cal.

CIVIL ENGINEER

as addition to the permanent staff of a major oil company. Duties include design and construction of town sites, industrial buildings, roads, foundations, oil refinery structures. Some knowledge of architectural design is desirable. Minimum qualifications are a degree and three years related experience.

Write giving age, education, marital status and detailed resume of experience.

Box 308-A
Radio City Station
New York 19, New York

Chief Civil Engineer
WANTED

Established West Coast Engineering firm needs qualified Graduate Civil Engineer to take charge of Civil Department. Thorough knowledge and wide experience required in Civil Engineering including grading, drainage, roads, railroads, and utility layouts for municipalities. In addition, applicant must possess ability to discuss and develop prospective work with municipal, county and state authorities. Furnish complete record with photo. Replies confidential.

P-9814, Engineering News-Record
621 S. Hope Street, Los Angeles, Calif.

WANTED

WANTED
Used 60 HP Vertical Boiler
Must be in first class condition, not over 48" dia. and allowed 125 Lbs. Steam pressure. State age, full specifications, location, price. Contact
UNION SAND & GRAVEL COMPANY
Huntington, W. Va.

POSITIONS AVAILABLE. Assistant Professor, young man, graduate in architecture or architectural engineering, with training in structures. Practical experience in architecture and structures desirable. To teach courses in structural design and to assist in coordinating architectural and structural designs. Starting salary, $3600 for 9 months, with possibility of summer teaching at the rate of $1200 for the quarter. Write to: Harold Bush-Brown, Director School of Architecture, Georgia Institute of Technology, Atlanta, Georgia.

WANTED
1-R D 8, 3-D 7, 2-D 6 and 5-D4
Caterpillar Tractors
—used—late models—in excellent condition. Give price, serial number, number of hours worked, and location.
W-9888, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

FINANCIAL BACKING

Wanted by young iron foundryman to set up a permanent or semi-mobile small fdry. I have the complete know how on casting manholes, catchbasins, allied castings economically. Need small backing by party or firm that can use or sell these castings. Will locate anywhere but the N. E. States. Write

BO-9855, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

Diesel Shovels & Draglines

1—1¼ yd. Bay City, 1946.
1—½ yd. Bay City, front and Backhoe.
1—1 ¾ yd. Lorain 87.
1—54 B.E. Strip, 45' Boom 32' Stick.
1—1006 Osgood Strip, 45' Boom 35' Stick.
2—3000A Manitwoc, 24' Boom 18' St.ck 1¾ yd.
2—80 D.N.W. 30' Boom 22' Stick. 2½ yd.
1—93 M. Marion Shovel and Dragline.
1—P&H 1055 L.C. 2½ yd. 1948.
1—P&H 1055-3 yd. 1948.
1—820 Lorain 24' Boom 18' Stick 2 yd.
1—87 Lorain 1 ¾ yd. 1942 New Engine. Dragline Equipment and with some of above.
5—D8 Caterpillar Bulldozers, cable and Hyd.
1—4D Caterpillar Bulldozer and Athey Loader.
4—Euclid Trucks Diesel Std. 1948.
2—d½-3 and 5 yd. Shovel Dippers.
1—Le Tourneau 4 wheel Model G.
4D Cletrac Angle Dozer, Diesel, rebuilt.
2—30 HP. G. E. Motors, 1200 RPM 3/60/220.
20' x 200' Prefab Steel building, Cl. Complete.
20 & 25 ton Gas and Diesel Loco. Std. Ga.
Blarkat Heavy Tow Tractor. $550.00.
B. D. H. Cletrac Diesel Angledozer. Rebuilt.

McCARTNEY MACHINERY CO.
Church St., Youngstown, 10, Ohio

8" Steel hull diesel dredge, new.
16" Steel hull diesel dredge, Portable
20" Steel hull diesel dredge
30" Steel hull diesel dredge Electric
30" Dredge pump and 2500 H.P. motor
8 to 10 yd. Steel dipper dredge, Steam
Steel diesel Drill Boat
3 Wooden bottom dump scows
Diesel tug 300 H.P. 47', New

H. P. GUION
303 W. 42nd St., N. Y. City

Special - HOISTS - Special

UNUSED SURPLUS

10—"CLYDE" Steam 8½ x 10 3 Drum w/Siewer.
8—"SKAGIT" Model BU-140 2 Drum, 4 Speed Trans.
6—"SKAGIT" Model BU-100 2 Drum, 4 Speed Trans.
2—"SKAGIT" Model BU-30 2 Drum, 4 Speed Trans.
2—"SKAGIT" Model BU-30 3 Drum, 4 Speed Trans.
5—"OK CLUTCH" Model BD-60 2 Drum.
5—"CHRISTIAN" Model 31900 2 Drum.
Line Pulls 7,000 lb. to 233,000 lb.
Contractors Type Suitable for Construction, Drag Scraper, Slackline Scraper, or Logging.
Gasoline & Diesel Powered

- DERRICKS -
Guy & Stiffleg 10 to 50 Ton Capacity

BOYE & TINKLER CO.
2590 Oakdale Ave. San Francisco, Calif.

FOR SALE

SURPLUS EQUIPMENT

10 Allis Chalmers, HD10 tractors, like new.
5 Buckeye Shovel cranes, Model 70.
5 P & H model 255A and 155A.
1 MC4 Lora.n truck crane.
1 MC3 Lora.n truck crane.
3 D7 Cat. dozers.
3 Case rubber tire farm tractors.
3 Lima paymaster, ¾-yard combination shovel and crane.

For prices, etc., please write to

FRANK TESTA
925 Citizens Bldg., Cleveland 14, Ohio
or telephone TOwer—1-0558—1-0559

FOR SALE

One used Link Belt Multi-Louvre Dryer $610, Speed 66 F.P.M., with Auxiliaries including Air Heater—990,000 B.T.U. per hour, Cyclone Collector, Exhauster 1710 C.F.M. at 200° F., Gas Mixer and Combustion Blower, Controls, and Motors.

CALGON, INC.
Hagan Bldg. 323 Fourth Ave. Pittsburgh, Pa.

FOR SALE

CRANES

Colby Model 200 electric powered Whirley cranes, 45 ton at 30 foot radius. Excellent condition.

GENERATORS

1000 KW Elliott Generators, New, 720 RPM.

DIESEL ENGINES

1600 HP General Motors Engines, 720 RPM.

PACIFIC BRIDGE COMPANY
333 Kearny Street San Francisco, Calif.

New and Guaranteed Used

Steel PIPE and TUBING

For Every Purpose

New and Guaranteed Used

Steel TANKS

Welded - Riveted - Bolted

For High Pressure; also ordinary storage
Up to 74,000 bbl. capacity

Large stocks carried everywhere for IMMEDIATE SHIPMENT

A. GREENSPON PIPE CO., INC.
(In Business 73 years)
3615 Olive St. St. Louis 8, Mo.
FRanklin 0064 or 1606

FOR SALE

One—3 x 5 W. S. Tyler Co. Type 38—2 Surface Hummer including dust covers, balanced gate feeder with V-16 vibrator, one Model 115 Thermionic Power Unit. Completely new, never been used.

THE MASTER BUILDERS CO.
7016 Euclid Avenue, Cleveland 3, Ohio

FOR SALE

1—D-8 Tractor with LeTourneau D.D.P.C.U. and Cable Bulldozer Blade—$8000.00
1—LeTourneau Model L P. Scraper — $2500.00
1—Lorain Model 30A Shovel, Crane, Dragline, and Backhoe — Serial 9417 — $7500.00
1—Lorain Model 40 Truck Crane, mounted on A. C. 10 wheel Mack, 60' Boom—Serial 9000—$8500.00

The above equipment can be seen working in the vicinity of Williamsport, Pa., at the present time.

Lycoming Construction Co., Inc.
WILLIAMSPORT, PA.

DERRICK

15 ton steel stiffleg derrick.
35' mast, 85' boom, 18'6" extension
$2,250.00
Capacity 15 tons with 85' boom at 45 degrees radius.

A. F. WAGNER IRON WORKS
1905 S. First St. Milwaukee, Wis.

FOR SALE

CONCRETE PLANT

Concrete mixing plant consisting of three Smith tilting two yard mixers with five compartment aggregate bin, cement silo and elevator, weight scales, tank etc. Plant semi-automatic with electric controls on all operations. All above mounted on structural steel frame.

Can be inspected under operating conditions at McConnell Lake Dam, Moor Lake, Ont.

ATLAS CONSTRUCTION CO. LTD.
Westmount, Quebec

LIQUIDATION SALE

Cat. D-7 DPCU Cabledozer undercarriage, Blade and Motor Kit, all new.
1½ cy. Link Belt Crane—Diesel—65' Boom—Fairleads, Tagline, Digging Bucket. No hours on machines since completely overhauled.
'47 ½ Ton INT. Pick-up Truck, low mileage.
1—Bucket Bale Sheave (new) for 37B.
BARGAIN PRICES

NEDCAR EXC CO., Rm. 1514
15 WM. ST. N. Y. (5) N. Y. Hanover 2-9194

FOR SALE

Item Description	Price
1 Bay City ½ c.y. Model 25 Crane Boom, Shovel & Hoe.	$10,000.00
2 Sets of Sheepsfoot Rollers 3 drum	ea. 850.00
1 Parsons Trencher, Diesel...	11,800.00
1 D-8 Tractor/Bulldozer Serial #1H5727 with J Scraper...	8,900.00

FOR RENT

2 sets Sheepsfoot Rollers—1, 2 and 3 Drum
1 Parsons Trencher—Diesel

GEORGE E. DUTEAU
1125 Page Boulevard Springfield, Mass.
Tel. 7-1408

FOR RENT

Rent with Purchase Option

PAVING EQUIPMENT

Forms, Bins, Finishers, Pavers, etc., etc.

DRAVO-DOYLE COMPANY
2601 Preble Ave. Pittsburgh 12, Pa.

FOR RENT

New and almost new Manitowoc Speedcranes

80 ton—2½ cu. yd. capacity Combination cranes, dragline and clamshells, caterpillar mounted—diesel powered. Reply

FR-8967, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

PILING

(Additional Piling Ads on Page 67)

FOR SALE OR RENT

STEEL SHEET PILING

500 PCS. BETH. DP2—70—60—30—20 Ft.
700 PCS. BETH. MZ38—20 to 60 Ft.
200—PCS. BETH. DP2—20 to 27 Ft.
109 PCS. BETH. DP1—45 Ft.
900 Tons Carnegie MZ 32—65 to 85 Ft.
E2 McK-T & 800A VULCAN EXTRACTORS

STANHOPE, 60 E. 42nd St., N.Y., N.Y.

NEW PARTS

FOR

Tractors, Graders, Scrapers, Shovels, Cranes, Trench Diggers, etc.

(Allis Chalmers, Caterpillar, International, Barber-Green, Insley, Buckeye, Northwest, Loraine, Turnapull.)

Cutting Edges All Sizes—Fairleads

CEMENT MIXERS

2 Ransome and 1 Rex

Excellent Condition

JULIUS HEBENSTREIT, INC.

56-15 58th St. Maspeth, L. I.

Tel. DAvenport 6-1461

Cable: Habenjul New York

IMMEDIATE DELIVERY

BPS and WIDE FLANGE BEAMS

8"	31#, 36#	40/60'
10"	42#, 49#, 54#, 57#	24/65'
12"	53#, 65#	36/50'
14"	73#, 87#, 89#, 95#	28/60'
21"	112#, 132#	40/60'
24"	100#	30/60'
27"	94#	55'
30"	116#	35'
36"	160#, 170#, 182#, 194#, 260#, 300#	35/80'

I BEAMS, ANGLES, PLATE, CHANNELS, SHIP CHANNELS

HY DRACHMAN STEEL Corp.

Warehouse 14-23 34th Ave. Astoria, Long Island *Sales Office* 563 E. Tremont Ave. New York 57, N. Y.

AStoria 8-8023—8-8096 CYpress 9-5440-1

INVENTORY CLEARANCE

"Get our Prices"

-New Machinery-

1—⅜ yd Osgood Shovel

1—½ yd Osgood Shovel & Backhoe

1—¾ yd General Shovel

1—Adnun Blacktop Paver

1—315 ft. G-D Portable Compressor

-Used Machinery-

1—½ yd Bay City Shovel, Model K

1—AG Cletrac with Loader & Trailer

1—25 ton Trailer on pneumatics

1—Quickway Shovel & Backhoe on 6 x 6 GMC Truck

R. B. WING & SON CORP.

384-86 Broadway Albany, N. Y.

Phone 3-4161

CLEARANCE SALE

OF

BUCKEYE TRENCHERS

BUCKEYE C-15, Ladder type with cast buckets, rooters 20' Deep. 42" wide. Twin City 4 cyl. motor. Machine in new condition, will stand rigid inspection.
F.O.B. cars $5,250.00

BUCKEYE C-10, Perfect condition. Dig 14' Deep 30" wide. Twin City 4 cyl. motor. Ready to work.
F.O.B. cars $3,750.00

BUCKEYE MODEL D BACKFILLER, with scraper blade, Waukesha motor. Ideal for backfilling trenches.
F.O.B. cars $1,750.00

GARGARO CO. Contractors
40 E. Seven Mile Rd. Detroit 3, Mich.
Phone: FOrest 6-0700

FOR SALE or RENT ALL LATE MODELS

1—N. W. Shovel, 2½ c.y. new Oct. 1946

1—N. W. Shovel, 1½ c.y.-new April 1946

1—P & H Dragline, 1½ c.y., new June 1948

1—Allis Chalmers Tractor Model HD19H, new May 1948

5—D W 10's—used 2500 hours

1—Caterpillar Auto Patrol #12—9K4626

1—Caterpillar D8 Angledozer #8R8933

1—Caterpillar D7 Bulldozer 4T5988

WILLIAMS CONSTRUCTION CO.

Box 145, Middle River, Baltimore 20, Md.

Phone: Essex 1310

TEXTOLITE TUBING

Equivalent NEMA Grade XX Rolled Phenolic Laminated Tubing. High dielectric strength, low power factor, high insulation resistance. Light in weight, structurally strong, chemically inert. Manufactured for the Government by General Electric and now surplus. Offered either with plain ends, or threaded and coupled with couplings of like material. Priced at a low fraction of original cost allowing use as piping. Size 4 9/16 ID with ¼" wall. A free sample of material with additional information on request.

IRRIGATION DIVISION VEG-ACRE FARMS

Forestdale, Mass.

FOR SALE

1—No. 56 Pioneer portable crushing plant powered by two D17000 Caterpillar Diesels equipped with 30-inch x 42-inch primary crusher, 24-inch x 54-inch roll crusher and with 40-inch x 12-foot traveling grizzly.

3—Koehring Dumpsters Serial Numbers D-2577, D-2578 and D-2579.

ALL IN EXCELLENT CONDITION NOW AVAILABLE

Kearney, Crume & Company

3606 Commercial St., Dallas, Texas

Phone Tenneson 3-3783

REBUILT CATERPILLAR DIESEL ENGINES

1—D-13000 Caterpillar Power Unit $3,400.00

1—D-17000 Caterpillar Diesel Engine $5,400.00

1—D-3400 Caterpillar Diesel Engine $1,600.00

1—D-3415 Caterpillar Diesel Generator Set, 15 K.W. $2,100.00

1—Case Model DE Rebuilt Engine $450.00

GILES & RANSOME, INC.

2729 Hunting Park Ave.
Philadelphia 29, Penna.
Phone—SAgamore 2-3020

1946 P & H ⅜ yd.

Shovel - Crane - Clamshell combination

8-cylinder Ford Engine one year old
Complete machine F.O.B. Phila.—$4000.00

FRANTZ EQUIPMENT COMPANY

50th & Wynnefield Ave., Philadelphia 31, Penn.
Telephone: GReenwood 3-8600

FOR SALE

34-E Koehring Dual Drum Paver $8,500.00. Located Near Memphis, Tennessee.
¾ Yard Buckeye Shovel Attachment $750.00 Unused. Located Kenner, Louisiana.

T. L. JAMES & COMPANY, INC.

Kenner, Louisiana

New Guaranteed . . . 60 TON

HYDRAULIC JACKS

Navy Surplus ILLUSTRATED CATALOG **60% off**

BERKELEY DISTRIBUTORS INC.

FOR SALE

1—"Caterpillar" D2 and Traxcavator. Good condition $3,500 00

1—"Caterpillar" Diesel D4 tractor with Athey Overhead Loader, new 1949, demonstrator. Bargain $8,500.00

1—"Caterpillar" RD6 tractor w/LaPlant-Choate V-61 snow plow $3,000.00

1—"Caterpillar" RD4 tractor with La-Plant-Choate Bulldozer. Nice condition $3,800.00

1—"Caterpillar" diesel #10 tandem motor grader nice condition, good tires $2,700.00

1—D13000 Engine Replacement for D8 tractor. Rebuilt $1,950.00

1—"Caterpillar" D4 completely reconditioned in our shop and guaranteed excellent shape $4,250.00

1—"Caterpillar" No. 12 motor grader complete with scarifier, lights, starting system and cab. Good condition throughout $6,800.00

1—Allis Chalmers HD7 tractor, wide gauge, with Garwood angledozer. New in 1948 .....$7,000.00

T. SOUTHWORTH
TRACTOR & MACHINERY CO., INC.
Glenwood Road—Menands, Albany 4, N. Y.
Phone Albany 5-5255

FOR IMMEDIATE SALE

1—Thew-Lorain — L-820 — Equipped with drag bucket and clamshell. Cat. Diesel, 1947.
1—Lima Paymaster—¾ yd. 35' boom, wide treads, G.M. Diesel, equipped with drag bucket and clamshell, 1947.
1—Koehring #304, 45' boom, Int. Diesel, equipped with drag bucket and clamshell, 1945.
1—Koehring 401, 50' boom, Gas power, equipped with drag bucket and clamshell, 1938.
1—Rex Pumpcrete, Double 160, 1,000 feet 7" pipe and many accessories.
3—Saws, DeWalt and Electrical powered band saws.
1—Air Compressor, Ingersoll-Rand, 315 cubic feet, 1947.
1—Air Compressor, Worthington, 105 cubic feet, 1947.
1—Air Compressor, LeRoi, 315 cubic feet, 1947.
1—Pile Hammer, Vulcan 50C and steel 40' leads.
1—Welder, Hobart, 300 amps., 1947.
2—Vibrating Screeds, 22' Roadway, 1947. Paving Breakers, Vibrators, and misc. small equipment.

STEEL H BEAMS:
16—36"—230#/ft. 36' and 41' long.
31—10" x 12"—54#/ft. 36'—0"
12—12" x 12"—72#/ft. 22'—30"
17—Lengths new 8" W.I. Pipe, 20' to 22' long.

ALEXANDER & REPASS CO.
31st and K Streets, N.W.
WASHINGTON, D. C.

SURPLUS BARGAINS

1—15 KW International Diesel Generator 120-240 v 60c radiator, instruments like new.....$1600
1—15 KW Hill Diesel Generator 120-240 v 60c radiator, instruments new never run....$1600
5—15 KW Onan-Ford Gas Generator 115 v 60c reconditioned, good condition.....$550
2—600 HP Washington Marine Diesel, 277 rmp, all component parts and spares, New, export crated $27,500
1—1440 HP GM, Model 16-278a complete with reverse gear, compressor, etc.....$12,500
2—Superior Diesels MR8, 200 hp 1200 rmp Twin-Disc 3to1 red, gear with props. Condition perfect, pair.....$6,000
4—Westinghouse Reduction Gears, 2to1, for 1800 HP Diesel, New. Never used.....$3,500
Large lot of pumps, exhaust fans, DC Motors, switchboards, etc. We have equipment off over 35 LCIS LSMS LSTS

WOOLDRIDGE COMPANY
Box 54 Phone 2-2283
JEFFERSONVILLE, IND.

FOR SALE

One (1) Caterpillar 1948 D-8 Tractor with Caterpillar straight dozer and Caterpillar D.D.P.C.U. serial no. 2-U-4581, 2500 hrs. Condition excellent. $13,000.00.

One (1) International Model T-9 (gasoline) Crawler Tractor, equipped with Hough 1 yard front end loader; under 2000 hours, condition excellent. Price, $4000.00.

GEORGE E. JOHNSON
512 No. 17th Lincoln, Nebraska
Phone 2-3000 - 2-3034

Attention: Contractors

We have available in our Yard, 984 Metcalf Avenue, corner Bruckner Boulevard, East Bronx, New York

FOR SALE or RENT with OPTION TO BUY

1 Lorain Diesel Shovel, 1½ yard capacity
2 Caterpillar D-7 Bulldozers
2 International TD-18 Bulldozers
2 International TD-14 Bulldozers
3 Truck Cranes, Lorain-Bay City-Insley
1 Lorain ½ yd. Shovel & Backhoe
Dragline & Clam Shell Buckets ½ to 1 yd. capacity
Good used Track Chains Rollers & Sprockets for TD 14 & TD 18

All late models in A1 Condition, Reasonably Priced.

BENDIX MACHINERY CO., Inc.
401 Broadway, N. Y. 13, Tel: CA nal 6-5693

USED EQUIPMENT FOR SALE

3—Bucyrus Erie Steam Shovels ¾ Yd., 1 with Caterpillar, 2 with Wheels. Condition—Good. Price $1,000.00 each.
3—Wisconsin FV-4 Air Cooled Motors—Practically new. Price $200.00 each.
1—Allis Chalmers 3-AC Pulverator, Cap. 6-7 tons per hr. Condition—Good. Price $1,000.00.
1—Falk Speed Reducer 29-DA—100 H.P. with Motor Base, complete with Falk Coupling and Fast Coupling. Condition—Excellent. Price $1,000.00.
1—Link Belt Rotating Screen 4' x 16'. Complete with extra screen plates 4" to 7" openings. Condition—Good. Price $400.00.
1—Yale Electric Lift Truck—Model KM30-2M 2,000# Cap. with Hoist and Trolley. Includes 2 Exide Batteries, 1 Charger and 16 Self Dumping ¾ ton Steel Hoppers with Casters. Condition—Excellent. Price upon request.
1—Continuous Clyde Hydrator Plant Cap. 5 tons per hr. Complete with Feeder, Raw Lime Bin, Beater Mill, Cyclone, 25 ton Storage Tank, Crusher and Elevator. Condition—Good. Price upon request.
1—Pebble Lime Plant including Roll Crusher, Elevator and Screen. Condition—Good. Price upon request.
12,000 (Approx.) New Silica Fire Brick (Yough). Various sizes and shapes. Great Saving.

THOMASVILLE STONE AND LIME COMPANY
THOMASVILLE, PENNSYLVANIA

NEW Guaranteed — 1¼" PNEUMATIC DRILLS

UP TO 60% off

WRITE NAVY SURPLUS INGERSOLL RAND CHICAGO PNEUMATIC

BERKELEY DISTRIBUTORS, Inc.
16 JOHNSON AVE., HACKENSACK, N. J.

FOR SALE

5000—Airfield Landing Mats
Size 3 ft. x 12 ft.—70 lbs. each
Located in New York City Area
FS-9758, Engineering News-Record
330 West 42nd Street, New York 18, N. Y.

FOR SALE

CLEAVER-BROOKS TANK CAR HEATER (NEW)
2-car Capacity—Semi-trailer
R. F. KLINE
Frederick, Md. Phone 1330

FOR SALE

2 Koehring Gantrys Convertible to Caterpillars

FS-9630, Engineering News-Record
330 W. 42nd Street, New York 18, N. Y.

FOR SALE

7—Terra Cobra Scrapers, 150-HP Cummins engines. These machines new 1946-1947. Less than one year work. Latest Improvements including cabs, 12-c.f. air compressors and 24-V generators, drive chains enclosed. All overhauled and appearance like new. Will sell in lot or separately.

All above subject to prior sale and

F.O.B. St. Paul, Minn.
Terms can be arranged

Address
R. M. Knox—B. S. Crooks
424 Endicott Bldg. St. Paul, Minn.

FOR SALE

12 YARD DRAGLINE BUCKET
Excellent condition, medium weight, made by ESCO. Price $2800.00 F.O.B. Yuma, Arizona, subject to inspection.
GRAFE-CALLAHAN CONSTRUCTION CO.
714 West Olympic Blvd., Los Angeles 15, Calif.

FOR SALE

1—Overhead Crane, 24' span, 20' runway, 31' supports, Cap. 5 tons with Chisholm-Moore 2 ton, 26' lift hoist $2000.00
1—Pennsylvania Class 7A 24" x 10" Vacuum Pump, rebuilt. $1500.00

ENGINEERED SALES
Alamo Nat'l. Bldg. San Antonio, Tex.

⅜ yd. Byers pullshovel-crane, new 1948 Byers Bearcat Jr. Crane ⅜ yd.
Conveyor 24" x 30'—portable.
2 yd. Hayward orange-peel bucket.
Pullshovel attach. for N.West 104.

J. T. WALSH
508 Brisbane Bldg. Buffalo 3, N. Y.

FOR SALE

1—N. W. Shovel
1½ c.y., Diesel New, never been used.

A. V. WILLIAMS
Box 145, Baltimore 20, Md.
Phone: Essex 1312

STRUCTURAL STEEL FABRICATOR desires SALES ENGINEER

Thoroughly experienced. Capable structural Engineer. Executive potentialities. All replies strictly confidential.

PITTSBURGH BRIDGE & IRON WORKS
Pittsburgh 22, Pa.

LACROSSE 33 TON TRAILER
FOR SALE
EXCELLENT CONDITION, PNEUMATIC TIRES, OVERALL WIDTH 9'10". SACRIFICE $1800.00
GENERAL EQUIPMENT CO.
511 E. COLFAX SOUTH BEND, IND.

FOR SALE
1 Portable 1250 Yd.
CUMMER DRYER
Price $1500
P. S. KRAMER
7 Smith St. Paterson, N. J.

Caterpillar
Diesel Engines
Model D-13,000 and D-8800
Complete - Very few hours
JULIUS HEBENSTREIT, INC.
56-15 58th St., Maspeth, L. I., N. Y.
Tel. Davenport 6-1461
Cable Address: Habenjul New York

PILING

PIPE

FOR SALE
STEEL SHEET PILING
900 tons of MZ-32
lengths—65 to 85 feet
condition—mostly new, small portion used
Inquire—Illinois 3554
WESTERN FOUNDATION CO.
Venice, Ill.

FOR SALE
CAST IRON PRESSURE PIPE
FITTINGS and VALVES
ALL Sizes, and Kinds—Bell and Spigot—Bell and Bell—and Flanged Ends. Also Cast Iron Soil Pipe and Fittings—Cast Iron Culvert Pipe
— IMMEDIATE DELIVERY —
PHONE—WIRE—WRITE
TAGCO INC.
111 FRONT ST.
Hempstead, Long Island, New York
Phone Hempstead 2 { 5535 / 8857

BUCKETS - BUCKETS - BUCKETS
New CLAMSHELLS W/TEETH
3—"BLAW-KNOX" Model 716-H 1½ yd. Gen'l Purpose. Wt. 5030 lbs.
3—"BLAW-KNOX" Model 701 1¼ yd. Hard Digging. Wt. 5120 lbs.
1—"WILLIAMS" Model 54M 2 yd. Gen'l Purpose. Wt. 7200 lbs.
1—"WILLIAMS" Model 27M 1 yd. Gen'l Purpose. Wt. 4400 lbs.
100% New Buckets—60% New Cost
BOYE & TINKLER CO.
2590 Oakdale Ave. San Francisco, Calif.

For Sale or Rent
STEEL SHEET PILING
103 pcs. 20 ft. Inland 127—Okla.
114 pcs. 70 ft. Carn. M116—N. J.
Other lengths and sections at various locations.
MISSISSIPPI VALLEY EQUIPMENT CO.
509 Locust St. Chestnut 4474 St. Louis, Mo.

SURVEYING INSTRUMENTS
USED • REBUILT • SALE • RENT • REPAIRING

RAILS-TIES
TRACK ACCESSORIES

QUICK ACCURATE SIGHTS with
U. S. ARMY TYPE SIGHTING LEVEL
Precision instrument for preliminary survey. Simple and easy to use. Ideal for builders, carpenters, masons, plumbers, contractors, etc., for laying drains, road building, foundations, contour farming, has thousands of uses. Comes with instructions.
PRICED LOW $1.85 EA.
Ship. Chg. 15¢ Ext. Ea.
SEND CASH, CHECK OR MONEY ORDER—SORRY NO C.O.D.

U. S. ARMY LENSATIC COMPASS
Accurate and dependable. Dial marked 0 to 360 degrees. Avoid the dangers of misdirection. Comp. with case. Used—Not Abused.
OUR $7.50 VALUE $1.85
Ship. Chg. 15¢ Ext.

J. JACOB SHANNON & CO.
214 N. TWENTY-SECOND ST., PHILA., 3, PA.
"The Oldest Equipment House in Philadelphia"

RAILS - ANGLE BARS
TIE PLATES
Write for Regular Bulletins of
CURRENT LISTINGS
Complete Range of Sizes
Always Available
RAIL DIVISION
COMMERCIAL METALS *Company*
LATIMER AT CORINTH, P.O. BOX 1046, DALLAS

SURVEYING INSTRUMENTS
FOR RENT
DANIEL McFARLAND
624 Second Ave. San Francisco 18, Calif.

It costs no more
to have your instruments of any make
repaired by the makers of the
WORLD'S FINEST SURVEYING INSTRUMENTS
since 1871
C. L. BERGER & SONS, INC.
37 Williams Street, Boston 19, Mass.

PROFESSIONAL SERVICES

Industrial Drilling and Boring Corp.
FOUNDATION BORINGS
GEOLOGICAL SURVEYS
P. O. Box 1206 1746 E. Adams St.
Jacksonville, Florida

Consoer, Townsend & Associates
Water Supply—Sewerage—Flood Control & Drainage — Bridges — Express Highways—Paving—Power Plants, Appraisals — Reports — Traffic Studies—Airports.
351 East Ohio St., Chicago 11, Illinois

Metcalf & Eddy
ENGINEERS
Investigations Reports Design
Supervision of Construction
and Operation
Management Valuation Laboratory
Statler Building, Boston

Gustave M. Goldsmith
Consulting Engineer
Structural and Building Design
Quantity Surveys
Production Planning
1734 Bella Vista, Cincinnati 29, Ohio

Jones, Henry & Schoonmaker
(formerly Jones & Henry)
Consulting Sanitary Engineers
Water Works, Sewerage & Treatment
Waste Disposal
Security Building Toledo 4, Ohio

Albright & Friel, Inc.
Consulting Engineers
Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators, Power Plants, Industrial Buildings, City Planning, Reports, Valuations, Laboratory.
121 So. Broad St., Philadelphia 7, Pa.

Now available EVERY week . . .
Consultants may now make contact every week with prospective clients through this section. For information write
Professional Services Section
ENGINEERING NEWS-RECORD, 330 West 42nd St., N. Y., 18, N. Y.

NEW PRODUCTS

Diesel Pile Hammer Eliminates Auxiliary Equipment

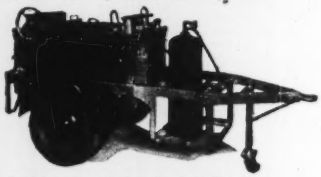
An important and revolutionary new pile-driving tool—soon to be available commercially—is described publicly for the first time with this item in ENGINEERING NEWS-RECORD. It is an entirely self-contained diesel-driven pile hammer which requires no auxiliary equipment—such as steam boilers or air compressors—to maintain pressure. The Syntron hammer is 15 ft. 6 in. long, has a 20-in. diameter, and weighs 11,000 lb. Despite this compact size and light weight, the hammer delivers driving energy at the rate of 16,000 ft./lb. per stroke, and is capable of 84 strokes per minute. The combined weight of the striking parts is 5,400 lb.; the length of the normal stroke is 4 ft. The hammer fits in standard 20-in. leads and requires two lines for operation—one for lifting the hammer; the other for lifting the pile and for starting the hammer by lifting its piston. One-man operated, the force of each blow is remotely controlled by means of a hydraulic system which operates similarly to automotive hydraulic brakes. The force of each blow can be easily varied from zero to full power, and the unit will idle without impact and without stalling. Preliminary tests of the diesel pile hammer were conducted by the U. S. Navy's Bureau of Yards & Docks. Complete details are available from—SYNTRON CO., 328 LEXINGTON AVE., HOMER CITY, PA.

Lightweight Masonry Saw

Masonry saw featuring rigid-tube construction has a weight of only 225 pounds. The Valor is powered by a 1½-hp motor which operates both the water pump and the saw blade to make an efficient dry-and-wet cutting device. The saw is also available in dry-cut models. The Valor features an automatic blade-pressure control, and ten, different head positions for various size materials. The unit is available in a take-apart model.—THE VICTOR ENGINEERING CORP., BRISTOL, PA.

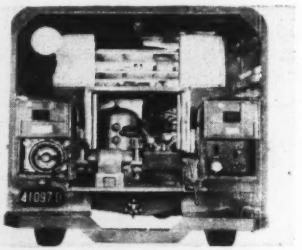
Screens and Cuts Sewage Solids

Griductor intercepts large solids in normal sewage stream and reduces them by intermittent cutting without excessively increasing dissolved organic content of the sewage. Screening and cutting is accomplished by stationary semi-circular screen grid and rotating circular cutter discs. Grid permits small solids to pass through clearance space between it and cutter discs. Three types of operation are available—manual, timer-actuated automatic, and flow-actuated automatic. Features include flexible, straight channel installation, long-wearing cutter comb, radial adjustment to maintain proper cutting clearance, and doubled-ended cutter teeth.—INFILCO, INC., 325 W. 25TH PLACE, CHICAGO 16, ILL.



Rubberized-Asphalt Kettle

A new 50-gallon kettle for heating and melting rubberized asphalt, and other joint-sealing compounds, is designed for use on small jobs, or for maintenance operations. The Model 50-DVP employs a double-boiler heating system in order to prevent burning of the rubberized material. It is fired by a single L. P. G. burner, and has a shock-proof 2-pole thermostat calibrated from 100 to 550-degrees F. The Model 50-DVP can be supplied on skids or pneumatic tires.—AEROIL PRODUCTS CO., INC., WESLEY ST., SOUTH HACKENSACK, N. J.



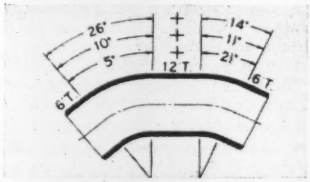
Field Service Unit

Field service unit provides all necessary equipment for servicing all types of construction machinery. Mounted on a 4-wheel drive truck, it contains a 300-amp welder, 8-kw ac generator, a Little Workhorse compressor operating at 150-pounds pressure, oxy-acetylene welding, cutting, and brazing outfit, 8-inch electric bench grinder, portable arbor press, floodlights, 7,500-pound winch, and complete complement of service tools and other equipment. All powered equipment is driven by a P-80 Davey heavy-duty power take-off. The truck provides room for driver and six passengers.—DAVEY COMPRESSOR CO., KENT, OHIO.

Seal for Ignition Systems

Safe-T-Seal is said to permit ignition systems to function steadily even under a stream of water. It is recommended for improving engine performance and reducing breakdowns and repairs on trucks, tractors, trailers, cars and other stationary engines. Safe-

T-Seal is a non-inflammable semi-liquid product that is applied to spark plugs, coils, distributors, magnetos, battery posts and cables and all wiring in the ignition system. It seals the electrical current within the ignition system, thereby assuring improved spark strength and constant firing. Other features claimed for it include quick starting, increased pep and power, increased gasoline efficiency and less dilution of crankcase oil.—National Distributor is Silver Booster Mfg. Co., 812 South Flower St., Burbank, Calif.

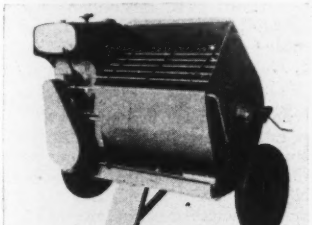


Fittings for Gas Systems

Main-line fittings for gas-transmission systems are designed with 6-inch tangents on each end, spanning two angles, which are themselves connected with a double 12-inch tangent. The compound Tanj-ells are made in one piece without intermediate buttwelds. They are said to meet any field angle likely to be needed with a 6-inch tangent on each end, within ½ or 1 degree of what is actually wanted. They are made in a wide range of sizes from 8⅝ to 36-inch outside diameters.—Taylor Forge & Pipe Works Inc., P. O. Box 485, Chicago 90, Ill.

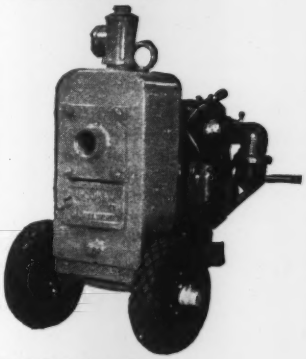
Calcium Chloride in Pellets

Large-scale production of calcium chloride in pellet form is announced by Dow. The new pellets are an anhydrous formulations (96 percent) in buckshot size. Their high analysis is said to make them more efficient, more free flowing, and more easily stored. The pellets are packed in 100-pound moisture-proof bogs. — Dow Chemical Co., Dowflake Sales Division, Midland, Mich.



Plaster Mortar Mixer

Plaster mortar mixer with 10-cubic-foot capacity is recommended for high-volume production. Mounted on two wheels with extra-wide treads for fast, easy towing, the 10-P mixer is of the non-tilt end-discharge type. Push-down tow-pole simplifies handling and prevents tipping. Charging height is 46 inches. The unit is powered by a 15-hp air-cooled engine. Non-clogging mixing blades are arranged for radial and longitudinal adjustment and produce end-to-end mixing action and rapid discharge. Blades are set to scour drum with each revolution—Kwik-Mix Co., Koehring Subsidiary, Port Washington, Wis.



Self-Priming Pump

A newly designed line of self-priming centrifugal contractors' pumps is now in production. The streamlined pump unit is made of all-welded steel plate, and features light weight combined with strength. These pumps are manufactured in all AGC standard sizes.—Leyman Mfg. Corp., McGowan Pump Div., 58 Central Ave., Cincinnati 2, Ohio.

Steel-Stud System

The Clipgrip steel stud system is an all-metal system for supporting and securely fastening—by mechanical devices—building materials used for wall construction. It is suitable for either dry wall or plastered wall construction for all non-bearing walls and partitions, and is fire-safe, economical, and salvageable. Clipgrips permit erection of a dry wall which is free from joint cracks and is void of nail marks.—Neslo Mfg. Corp., 516 Fifth Ave., New York 18, N. Y.

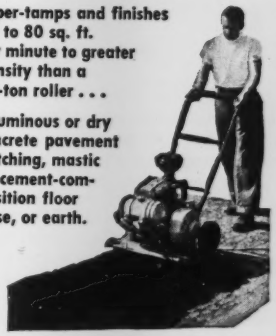
Twin Oxy-Acetylene Hose

Twin oxy-acetylene hose has two lengths of hose, one red and one green, joined by a thin strip of rubber. The Duo-Weld hose is made in 50, 25, and 12½-foot lengths, and in a stock diameter of ¼ inch. The hose is separated approximately 18 inches from each end and is secured with a metal ferrule at the separation point. The hose can be split into separate lengths, if desired.—The B. F. Goodrich Co., Akron, Ohio.

a 10-TON ROLLER that weighs only 240 lbs.

Super-tamps and finishes 60 to 80 sq. ft. per minute to greater density than a 10-ton roller . . .

bituminous or dry concrete pavement patching, mastic or cement-composition floor base, or earth.



***Heated plate hits 1750 to 1900 blows** per minute of over 1250 ft. lbs. each. Puts patches in solidly, sealed, cured, ready for immediate use. Works winter or summer.*

***Works where a roller can't* — flush to tracks, curbs, manholes, walls, factory interiors, confined spaces.**

***Solves maintenance problem** on streets, highways and parking areas; paves new drives, walks, floors. One-man operation, transports on material truck, practically no traffic interference.*

Earth-tamping — fast and positively uniform tamping of large areas, ditches, flood walls, etc. Machine will not move until material has been solidly tamped.

Send for catalog and name of distributor

WAYER IMPACTOR

SALES COMPANY

12 North Third Street, Columbus 15, Ohio

MANUFACTURERS' PUBLICATIONS

Concrete Accessories—Catalog is composed of eight sections devoted to various styles, types, and sizes of form-tying devices and other accessories for concrete construction. Charts, pictures, and word descriptions explain the proper selection and use of each item in the Richmond line. This fact-packed manual includes important data on construction details, engineering data, and information on how to order items listed. An entire section is devoted to engineering factors and methods essential to good concrete construction.—RICHMOND SCREW ANCHOR CO., INC., 816 LIBERTY AVE., BROOKLYN 8, N. Y.

Steel Products—Wide range of steel products is listed in three catalogs issued by Ceco. Bulletin No. 4002A is a handbook of products for reinforced-concrete construction; Bulletin No. 3002-A describes the Ceco line of steel joists; and Bulletin No. 3003 describes a complete line of steel roof decks. All three bulletins contain engineering and design data for users of these products, and are thoroughly illustrated with photographs of typical installations.—CECO STEEL PRODUCTS CORP., 5601 W. 26TH ST., CHICAGO 50, ILL.

Mild-Steel Welding—Weldirectory 462 is a guide for the selection of electrodes for welding mild steel and low-alloy high-tensile steels. Tables list physical properties, AWS class, electrode number, color of coating, and P or S markings for each unit in the Lincoln line. Text provides complete information on how to use each electrode, the polarity to use, position of the joint, arc length, and other pertinent data for operators.—THE LINCOLN ELECTRIC CO., 12818 COIT ROAD, CLEVELAND 1, OHIO.

Jaeger Equipment—Catalog GC-9 scribes the complete line of Jaeger equipment including pumps, compressors, mixers, paving machinery, truck mixers, towers, and hoists. Each item is illustrated, text matter describes its operation, and tables provide detailed information on the specifications and capacities of the various sizes in which each type of equipment is manufactured.—THE JAEGER MACHINE CO., 550 W. SPRING ST., COLUMBUS 16, OHIO.

Bathroom Fixtures—Ninety-four-page catalog illustrates new line of Briggs Beautyware vitreous china lavatories and closet combinations, under-sink cabinets, the Vanette and a color chart, as well as porcelain enameled ware and brass supply fittings. Catalog G is designed as a reference guide in writing specifications. Of particular interest, is the roughing-in and dimensional data section. Dimensional data is shown for each fixture to promote accurate floor planning for bath, powder room, and kitchen.—BRIGGS MFG. CO., 3001 MILLER AVE., DETROIT 11, MICH.

Concrete Hauling, Placing—Eight-page pamphlet is full of on-the-job pictures of non-agitating delivery and placement of air-entrained concrete. Bulletin L-106 describes how Dumpcrete saves on original purchase price, on daily maintenance, operation, and upkeep, and lists how concrete delivered in Dumpcrete can be controlled for specification work. Pamphlet also describes how Dumpcrete can be converted to use in hauling bulk cement, earth, mortar, or similar materials.—DUMPCRETE DIVISION, MAXON CONSTRUCTION CO., INC., 131 LUDLOW ST., DAYTON 2, OHIO.

Silicone Greases—Silicone greases as ball-bearing lubricants are described in two new publications. Silicone Notes No. D-5 lists properties, performance, and uses of these heat-stable and oxidation-resistant silicone lubricants. Notes No. D-6 contains information of how to use DC 44 silicone grease in the bearings of electric motors. The data sheets contain complete test data on the operating characteristics and physical characteristics of silicone greases.—DOW CORNING CORP., MIDLAND, MICH.

Sprocket Catalog—The enlarged line of Diamond sprockets and single and multiple-strand roller chains are listed in Catalog No. 709. This catalog describes the various items which are carried in stock by Diamond's nation-wide distributor organization. Appropriate data for selection of sprockets and chains is given, plus illustrations, dimensions, and prices.—DIAMOND CHAIN CO., INC., 402 KENTUCKY AVE., INDIANAPOLIS 7, IND.

Forged-Steel Casters—Forged-steel precision-type heavy-duty casters in 5, 6, and 8-inch-diameter wheel sizes are described in a 4-page bulletin. This bulletin contains photographs of the component parts comprising the caster—the forged-steel top plate, heavy-duty main-load bearing, one-piece forged-steel horn, Timken thrust bearing, slotted nut for precision adjustment, and forged-steel wheel. Illustrations and specifications are given for eight types of swivel and rigid casters for carrying loads as high as 10,000 pounds per caster.—THE BASSICK CO., 437 HOWARD AVE., BRIDGEPORT, CONN.

Rigid-Frame Buildings—Illustrated, 8-page catalog describes Rigidsteel design principle for economical building construction. This design affords speedy construction without a network of trusses. Special applications for industrial, municipal, or commercial buildings, with conventional or eccentric design, are discussed in detail.—MCCLOSKEY CO. OF PITTSBURGH, 3400 LIBERTY AVE., PITTSBURGH 1, PA.

Acoustical Materials—Eight-page catalog describes forms and properties, and methods of installing Fiberglas acoustical materials. These materials are available in plain or perforated tiles or boards. Use of Fiberglas thermal insulation for acoustical purposes is also described.—OWENS-CORNING FIBERGLAS CORP., OHIO BUILDING, TOLEDO 1, OHIO.

Concrete Additive—Data sheet describes how Dicalite helps produce a uniform concrete, increases ease of handling, placing, and finishing, and results in an improved concrete. Dicalite is a lightweight powered material, packaged in bags, and added at the mixer with other dry materials.—GREAT LAKES CARBON CORP., BUILDING PRODUCTS DIVISION, 18 E. 48TH ST., NEW YORK 17, N. Y.

Wood Preservatives—New folder, just issued, presents information on a complete line of wood preservatives and insecticides. Designed to present general information on several Chapman products, including penta preservative, Ambrocide, Permatox 10-S, and Permatox WR, the bulletin has been printed in both English and Spanish.—CHAPMAN CHEMICAL CO., 770 DERMON BLDG., MEMPHIS 3, TENN.

Industrial Signal Systems—Twelve-page catalog describes new idea in industrial signal systems. Panalarms are multiple signal and alarm systems for application where sound and visual alarms are required to indicate failure or changes in operating conditions. Bulletin 300 contains complete information on construction and applications of all units produced by the company.—PANALARM PRODUCTS, INC., 7218 N. CLARK ST., CHICAGO 26, ILL.

ADVERTISERS IN THIS ISSUE

American Bitumuls Co. 4
American Steel Dredge Co., Inc. 53

Bay City Shovels 71
Bethlehem Steel Co. 1
Blaw-Knox Div. Blaw-Knox Co. 56
Briggs & Stratton Corp. 38

Carnegie-Illinois Steel Co. 33
Cement Gun Co. 71

Fabricated Products Co. 71
Ford Motor Co. ..... 4th Cover

General Electric Co. ..... 2nd Cover
Gunite Concrete & Construction Co. 56

Hayward Co. 53

Jaeger Machine Co., The 53
Johnson Co., C. S. 35

Koehring Co. 35
Koppers Co. 40
Kwik-Mix Co. 35

McKiernan-Terry Corp. 56

Parsons Co. 34, 35

Raymond Concrete Pile Co. ..... 3rd Cover
Richmond Screw Anchor Co., Inc. 2

Sprague & Henwood, Inc. 56
Stancal Asphalt & Bitumuls Co. 4
Standard Oil of Calif. 39

Wayer Impactor Sales Co. 69
Westinghouse Electric Corp. 36, 37

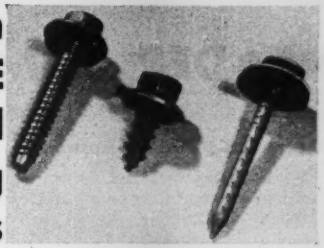
Searchlight Section
(Classified Advertising) ..... *pgs. 59, 67*

ENGINEERING NEWS-RECORD

G. R. Ramel, Sales Manager — Howard Olsen, Business Manager

Sales Representatives—Fred G. Hudson, L. H. Hunt and H. L. Keeler, 520 N. Michigan Ave., *Chicago* 11; Ralph Dorland, 68 Post Street, *San Francisco* 4; D. S. Robertson and W. G. Payne, 330 W. 42nd St., *New York* 18; A. B. Cozzens, 17th and Sansome Sts., *Philadelphia* 3; E. E. Duff, Jr., Hanna Bldg., *Cleveland* 15; B. F. Horn, Penobscot Bldg., *Detroit* 26; W. E. Donnell, Continental Bldg., *St. Louis* 8; C. F. McReynolds, 621 So. Hope St., *Los Angeles* 14; Ralph Maultsby, Rhodes-Haverty Bldg., *Atlanta* 3; J. H. Allen, First National Bank Bldg., *Dallas* 1. Other sales offices—738-39 Oliver Bldg., *Pittsburgh*; 1427 Statler Bldg., *Boston* 16; Aldwych House, *London*, England.

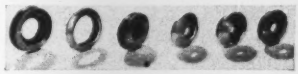
ONE PIECE in place of THREE CUTS COST in all assemblies using compressive washers



Wherever a metal and a compressive washer are used with a fastener, FABCO WEATHERSEAL Washers can effect real savings. A one-piece assembly means less handling, reduced inventory, faster assembly rate, lower labor costs, less buying. In fields now using Weatherseal, real cost-saving value has been fully demonstrated. WEATHERSEAL used in:

Corrugated sheet metal construction makes fasteners weatherproof.
Automotive assembly, improves inventory control, speeds assembly.
Ventilating, reduces ductwork rattle, increases manpower output.
Porcelain-to-metal assemblies, prevents cracking and crazing.

The WEATHERSEAL one-piece washer is a combinarion of neoprene and metal — aluminum, brass, copper or stainless, galvanized or electroplated steel. Size ranges from 7/16 to 3 inches o.d. Neoprene i.d. is smaller than the shank of the fastener to be used, making a snug fit and a complete seal when the fastener is "down." WEATHERSEAL may be ordered assembled with any standard fastener specified, or separately. Send for free samples for inspection and testing, specifying what fasteners you use, and in what quantities.



FABRICATED PRODUCTS CO.
Box 8005, Pittsburgh 16, Pa.

"USE **BAY CITY** IN '49 *save money... save time"*
SHOVELS
CRANES
DRAGLINES
HOES

READ THE FULL STORY ON PAGE 8 LAST ISSUE

BAY CITY
BAY CITY SHOVELS, INC., BAY CITY, MICHIGAN

"Gunite" ..... the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

READER COMMENT

Beam-Design Critics Answered

Sir: In ENR June 23, pp. 63 and 64, four letters commenting on my article, "Design of Concrete Beams Reinforced in Tension and Compression," (ENR May 5, p. 16) were published.

The basis of my article were two propositions: (1) If a plane section remains plane after bending and if the section is transformed into an all-concrete section, the stress diagram for the section is a straight line. (2) For all but very shallow beams reinforced in compression, the design stress in concrete cannot be attained.

If the modular ratio $2n$ in my article is replaced by an unknown ratio N, which includes the effect of plastic flow but is not limited to a single value by the coefficient 2, my Eq. 1 becomes

$$f_c = \frac{f_s'}{N} \cdot \frac{x}{x - d'} \qquad (1a)$$

Also, from Eq. 2:

$$x = d' + \frac{f_s'}{f_s + f_s'}(d - d') \qquad (2a)$$

By referring to Fig. 1 and 2, one can write an equation of balance for the areas of the cross section about the centroid:

$$\frac{bx^2}{2} + (N-1)A_s'(x - d') = NA_s(d - x) \qquad (3a)$$

and an expression of equality between the moments of the compressive forces about the tensile steel and the applied moment:

$$\frac{1}{2} f_c bx \left(d - \frac{x}{3}\right) + (N-1)A_s' \frac{f_s'}{N}(d - d') = M \qquad (4a)$$

Solving Eq. 3a and 4a for A_s' and A_s yields:

$$A_s' = \frac{M - \frac{1}{2} f_c bx \left(d - \frac{x}{3}\right)}{f_s'(d - d')\frac{N-1}{N}} \qquad (5a)$$

$$A_s = \frac{\frac{1}{2} bx^2 + (N-1)A_s'(x - d')}{N(d - x)} \qquad (6a)$$

If the data of my Example 1 is substituted into Eq. 1a, 2a, 5a and 6a, the following results are obtained

$$x = 10 \text{ in.} \qquad (2b)$$

$$f_c = \frac{20{,}000}{N} \qquad (1b)$$

$$A_s' = \frac{825N - 12{,}500}{216(N-1)} \qquad (5b)$$

$$A_s = \frac{200 + 165N}{54N} \qquad (6b)$$

Assigning different values to N produces a table of corresponding values of f_c, A_s' and A_s:

N	f_c	A_s'	A_s
24	833	1.47	3.21
20	1000	0.975	3.24
18	1111	0.64	3.26
16	1250	0.216	3.29

It appears from this table that the value of A_s' depends on the decision made in the selection of N. If, designing with the 3,000-psi. concrete, N is taken to be 20, corresponding to $N/n = 2$, as specified by Sec. 706 (b), A_s' should be 0.975 sq.in.; if N is taken to be 18, so that $N/n = 1.8$, A_s' can be 0.64 sq. in.

(The area of 0.64 sq. in. closely corresponds to what Mr. Ellis would have got in his solution had he divided the 8,800-lb. compressive force by 16,000 instead of 20,000 and multiplied the result by $n/n - 1$:

$$\frac{8{,}800}{16{,}000} \cdot \frac{10}{9} = 0.61 \text{ sq. in.}$$

Since beams utilizing smaller areas than those corresponding to $N/n = 2$ have been built and are giving good service, it follows that the coefficient 2 specified to include the effect of plastic flow is unnecessarily high. Even though the concrete flows, its flow is never completed because of the resistance of the compression steel, and the concrete never attains the design stress.

Therefore, if in my Example 1 I used 1.8 instead of 2, I would have obtained the areas that Mr. Ellis gets and would have done it using the relationships of the straight-line stress diagram. To those of us who have to put such information across to students, this approach is superior to the commonly used method of computing the area of the compression steel on the basis of the elastic conditions and then arbitrarily dividing it by 2 or by the ratio of the design steel stress to the computed elastic steel stress.

In the light of this discussion I agree with Mr. Ramirez that the code coefficient of 2 can stand a closer scrutiny and, if the investigation warrants it, a revision apparently downward.

I cannot agree with Mr. Hirschthal who takes me to task for taking liberties with the modular ratio on the tension side. I see no great crime in that. As long as the neutral axis remains fixed—as it does when both the compression and the tension steels are stressed to their limits—1 sq. in. of steel can be replaced by 10 sq. in. of concrete with 1/10 the stress, or by 20 sq. in. of concrete with 1/20 the stress. In both cases the total force and the total deformation remain the same as in the original steel.

Professor Lin shows by a detailed —and correct—computation that moving the compression steel toward the neutral axis increases the resisting moment of the cross-section. He also adds: "The conclusion is in contradiction with the well-known fact that shifting steel toward the neutral axis will weaken the beam. Evidently, something must be wrong somewhere."

Professor Lin is correct so long as the steel is moved in an open space, such as we assume to occupy the place of concrete on the tension side of the neutral axis. When the steel is moved toward the neutral axis on the compression side, it permits the concrete to develop more fully its plastic flow and to receive a higher compressive stress. Thus, while the moment of the compression steel is decreased, the resisting moment of the concrete is considerably increased, resulting in a net increase in the resisting moment of the section.

I am mortified by Mr. Ellis' suggestion that we abandon the method of the transformed section in favor of the three well-known principles in the theory of flexure, apparently ΣH, ΣV and $\Sigma M = 0$. I believe that the transformed section is one outstanding device in the science of reinforced concrete design that makes it simple, or at least considerably simpler than it otherwise would be.

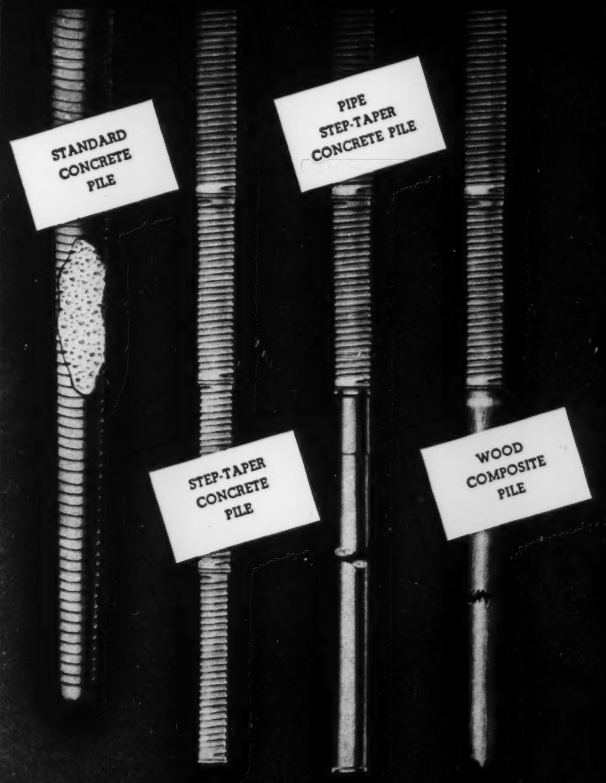
Boris W. Boguslavsky
Professor of Architectural Engineering
Georgia Institute of Technology
Atlanta, Ga.

Equipment for "Sand Piles"

In the article "Making Sand Drains Stick in the Mud" (ENR July 21, 1949, p. 42) it should have been noted that the special equipment—the mandrel, mandrel cap, leads, sand skip, etc.—was designed and furnished by the pile driver manufacturer, the McKiernan-Terry Corp. It will be recalled that the vertical sand drains or "piles" on this job were formed by compressed-air ejection of the sand from the special mandrel as it was withdrawn after being driven.

OUTSTANDING ADVANTAGES
OF
RAYMOND CONCRETE PILES

Raymond's successful experience for more than a half century has thoroughly proved these six outstanding advantages of Raymond Concrete Piles. These benefits, plus Raymond's expert personnel and specialized equipment, result in sound, dependable substructures that meet every requirement. You are invited to consult our engineers for the facts.



1

2

3

4

5

6

RAYMOND CONCRETE PILE CO.

Home Office in Principal Cities of United States and Latin America

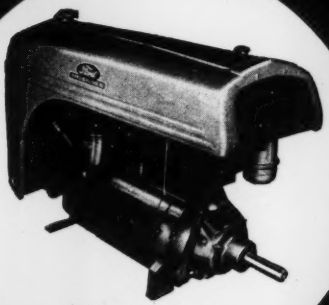
140 CEDAR STREET · NEW YORK 6, N. Y.

AROUND THE WORLD
52 YEARS FOUNDED 1891 OF PROGRESS

THE SCOPE OF RAYMOND'S ACTIVITIES

Includes every recognized type of pile foundation—concrete, composite, precast, steel, pipe and wood. Also caissons, underpinning, construction involving shore protection, shipbuilding facilities, harbor and river improvements and borings for soil investigation.

3



Ford 120 Four Cylinder
Industrial Engine Power Unit
(120 cu. in. displacement)

Good Roads
MACHINERY

Ford
INDUSTRIAL ENGINE